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EDUCATIONAL REVIEW

JANUARY, 1893

I

HIGHER EDUCATION IN THE UNITED STATES[1]

It is hardly possible for one whose life has been spent for the most part in other fields of activity, to say anything concerning higher education in the United States of great value from an educational point of view. I can indeed state impressions only on my own part, rather than matured convictions. I must hope that they will prove interesting, if not instructive, because they are what they are, the observations of one coming from without into the educational field in middle life.

I was graduated from Columbia college in 1870. I assumed the duties of the president's office of the college in 1890. In the interval of twenty years, the old college had changed almost beyond recognition. These changes manifested themselves not simply in the line of enlargement; some of them I have since come to look upon as typical of the movement of the times. As changes of this sort I would mention the development of a department of modern languages in the college proper, on a scale fairly commensurate with the classical departments of Greek and Latin; the development in many directions of advanced study and investigation, of a kind wholly unknown during my own career as a student; and a considerable enlargement of the elective system in its application to undergraduates. Inquiry and observation soon led me to perceive that these results which I noticed at Columbia were only the local expression of tendencies which had affected, in greater or less degree, all the colleges of the country.

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[1] Presidential address delivered at the fourth annual convention of the College association of the Middle States and Maryland, held at Swarthmore college, November 25 and 26, 1892.

It became a matter of interest to me, not to say of importance, to determine as far as I could the causes that had been at work to produce these results; for it was clear that these causes, whatever they were, at Columbia at least, had not spent their force. It seemed to be further clear that one who was to guide the development of a university must at least strive to understand whither they were tending. Speaking in a general way, then, I should say that higher education in the United States during the last twenty years has felt the influence of two strong currents, one of which I should describe, for want of better terms, as a world current, and the other as a national current. What I refer to as the world current is the demand which has been felt everywhere for the recognition of new studies as of equal intrinsic value, in these days, with the old humanities. This pressure has come especially from two directions: from the modern languages and from the many new developments of science. No country has been exempt from this pressure. In Germany the *realschule* has developed side by side with the *gymnasium*, and within the last year or two the entire educational world of the Empire has been shaken to its foundations by the demand made by the Emperor for a greater recognition of the modern branches, particularly of German itself, during that period of education which corresponds approximately with the college period here. In our own country, as is natural, these demands have met with a readier response. This response seems to me to have shown itself in our colleges in two ways: first, by the establishment of parallel courses leading to different degrees; second, to some extent, by the adoption of an elective system. In my judgment, the elective system reflects, perhaps in an even greater measure, what I have referred to as the national current, in regard to which I shall speak later; but it doubtless represents in part, as the parallel courses seem to me to reflect altogether, the effort of our colleges to adjust themselves to these new demands.

While the colleges have thus dealt with the practical question, the theoretical question involved, as I see it, remains still unsettled. The colleges that maintain parallel courses leading to different degrees reserve the A. B. degree for the course that contains the classics, that is to say, both Greek and Latin, in something like the old proportions. The other courses lead to the degrees of bachelor of science, bachelor of letters, or the like. As a practical way of dealing with a question in regard to which men have been sharply divided, this policy has much to commend it. On the other hand, I cannot help feeling that it is the policy of a transition period. The question will continually return until it is finally answered, Do these parallel courses afford a liberal education, or do they not? If they do, why is it necessary to multiply degrees? If they do not, why should the college encourage men, by the tender of other degrees, to spend their time upon courses presumably believed to be less profitable? After a thorough discussion of the whole problem at Columbia, we have assumed the following attitude, as,.in our judgment, the proper position to hold at the present time. We conceive of ourselves as offering three kinds of education: a liberal or college education, and university education of two kinds, professional and non-professional. Inasmuch as the A. B. degree is the generally accepted symbol of a liberal education, we give that degree, and that degree only, for our college course. The professional education that we give leads to its appropriate professional degree according to the course that may be taken; and the non-professional university education leads to the degrees of M. A. and Ph. D. At Columbia we are not yet ready to say that a man can be considered liberally educated who does not know something of antiquity as revealed through the classic languages of ancient Greece and Rome. We do not insist upon the equal proportion of this knowledge in every instance, neither do we undertake to say that other kinds of education may not be equally serviceable.

We do say, however, by our attitude, that, in our judgment, the classics must still be considered necessary component parts of a liberal education. Having this belief, we do not weaken it by offering any other degree. We will give every man all the educational privileges the college can offer, but we will not give him any degree to represent what may be called a quasi-liberal culture. This attitude, of course, concentrates the debate where, in my judgment, it ought to be concentrated, as to whether the classics are, in fact, necessary elements of a liberal education in this day and generation. If the time should come when the governing authorities of Columbia hold a different view from that which is now entertained, the recognition granted to those other courses doubtless will then be made full and complete. We shall still give only the A. B. degree as the symbol of our liberal education, but we shall have changed our conception of what a liberal education is.

As I have referred to the attitude of Columbia in this particular, it may not be improper to state what its curriculum is for which it now offers the A. B. degree. It consists of what may be called, with sufficient accuracy, the usual requirements for admission, including Greek and Latin. All work in the freshman year is required, and consists of three hours a week given to each of the following subjects: Greek, Latin, mathematics, English, and another modern language, either French or German. It will be perceived that this requirement recognizes the modern languages as an element sufficiently important to be insisted upon with the same emphasis as either Greek or Latin. I ought to add that there is also an entrance requirement in French and German, either of which languages may be presented by the student, although this requirement does not yet represent so much preliminary work as the entrance requirements in Greek or Latin. It will also be perceived that the attitude of the college toward the freshmen is to meet them with required work. They come to us at an average age of seventeen and a half, and they come to us as entire strangers from all sorts of fitting schools, good, bad, and indifferent.

We have not been able to believe it wise to meet a freshman class with any other option than the choice between French and German as the modern language to be pursued. No one connected with the college is capable of advising such men in the wise exercise of a broader election, and the men themselves are a heterogeneous body, if not altogether undisciplined, yet representing, certainly, very different degrees of discipline. One year of required work at the college serves a double purpose: it acquaints a certain number of our instructors with the personal equation of every student, so that from that time on, some of our instructors, in any case, are competent to advise each one; while it also trains the students themselves to take up the subsequent work of the college with something of Columbia's own spirit.

Accordingly, in the sophomore year, we meet the student with a single elective, upon the theory that the elective faculty itself needs to be trained in order to be used to the best advantage. This election is of the broadest possible character, as if a traveler were given the option of turning either to the east or to the west. The student can substitute three hours a week in chemistry, including laboratory work, for the same number of hours given to any language, either ancient or modern, except English. English remains among the required studies of the sophomore year, which are otherwise identical with the requirements of the freshman year, except that a two-hour course in history is introduced, and the mathematical requirement is reduced to two hours a week.

In the junior year, the required studies are history and political economy, ethics and psychology, with a certain demand for essay writing. Apart from these requirements the junior is given a very wide option in all the departments of letters, philosophy, and natural science.

In the senior year the student is entitled to study under any faculty in the university, making any combination of courses he may desire. In other words, the student's privilege of election is then complete.

Up to this point I have referred to the elective system, largely, though not altogether, from the point of view which has led to the resort to it as one means of meeting the demands from the pressure of the world current, to which I have alluded, for the recognition of new studies in the old curriculum. It seems to me, however, that the elective system, as illustrated in this country, represents in part, and perhaps most importantly, the simultaneous pressure of what I referred to earlier in this paper as a national current. It seems to me that since my own student days, which ended in 1870, a new ideal has entered into the educational life of the country. At that period, men who wanted to be scholars in any particular direction, as distinguished from men of liberal culture, went abroad to conduct their advanced studies. Our colleges at that time doubtless imbued many men with a desire for scholarly attainments, but the colleges were not able to satisfy that desire. The college to-day, in my judgment, is no more able to satisfy that desire than it used to be. But, in the interval since 1870, most striking and important progress has been made in the United States toward the development, here and there, of a genuine university. If I am right, the difference between a college and a university is, to a great extent, a difference in aim. The college aims, or should aim, to lay the broad foundation upon which the university must build. The purpose of the college, otherwise stated, is to give a liberal culture. The purpose of the university is to develop the scholar, a man who may become the master of thought in his chosen field. The aim of the two being so different, it is clear that the methods pursued by each are likely to differ radically. In the college, and for the work of the college, men may be dealt with in classes. In the university, and for the work of the university, men must be dealt with as individuals. Men may be trained in classes, but scholars are not so made. It is an essential element, therefore, of the university system, that each man should do individual work peculiar to himself. It may touch the work of others at some points, but in its essence it must be individual. He must come in contact with the teacher, not simply to imbibe such inspiration as may be derived from a general lecture, but in some effectual, personal way. He must be taught to use original authorities intelligently and effectively. He must have facilities offered him for individual work in research. These things imply great libraries, great command of current periodicals of every nature, great equipment by way of apparatus, and great facilities for its use, and, above all, the opportunity of personal contact with great teachers. Naturally, the older countries of the world have developed the university further than we have. Different countries illustrate different types, but everywhere you will find at the heart of the university system these necessary things that I have outlined. In England, when a man goes to Oxford or Cambridge, he is assigned at once to the care of a tutor, and he performs the whole of his university work under the guidance of an able and sympathetic friend. This tutor suggests to him the books he ought to read, the lectures he ought to attend, and, in general, serves as his personal guide through the broad country opened up before him by the university. This is a system, the excellent effects of which have made English literature and English scholarship notable throughout the world. It has grown up, as so many other things in England have grown up, out of conditions without a parallel anywhere else. Whatever may be its merits, and these will not be disputed, it seems to be a system wholly beyond our reach. Apart from the traditions that it involves, it requires vast endowments and a body of men of high scholarship who may be utilized in this way as personal tutors. I do not forget that in many respects the English system is the college system carried to its perfection, rather than a university system, in that the work done even by the men who are candidates for honors is to enable them to pass competitive examinations, rather than to demonstrate their individual acquaintance with the subject at large, as founded on original work. Nevertheless, the results serve to illustrate the advantage of individual treatment in its effect upon scholarship.

In Germany, on the other hand, a system has been developed which has been transplanted, in part, to this country with considerable success. In Germany, as I understand it, the universities assume the broad foundation which our colleges give. They adopt, as their controlling mottoes, these two ideas—that the teacher shall have freedom to teach and the scholar shall have freedom to learn. Public lectures to the students in large bodies represent their attitude to the great body of students. These lectures are depended upon for inspiration, rather than valued especially as a means of instruction. But out of the large body of students listening to the lectures are gleaned select companies to enter the seminarium of this or that professor for purposes of thorough and systematic research. In this closer intercourse the personality of the professor finds its opportunity to impress itself upon the student. There the student is taught how to use original materials, and is pointed out the most hopeful direction in which to seek for the results he wants. But the student himself does the reading and the work, not the professor. He is under the guidance and inspiration of the professor, rather than under his instruction. One can easily perceive how, under this system, the personality of the professor is all-important. Only the man who is himself full of learning and the master of his subject can tell another man how he may, in turn, become so, and transcend, perhaps, the fame of his teacher. Only the man who is himself aglow with the desire for knowledge can feed the flame in other men. Thus it is apparent that the university system of Germany, like the university system of England, makes great scholars by dealing with individuals and not with classes. Germany's intellectual leadership in so much of the scholarly work of modern times is due to its complete recognition of this principle, and to the thoroughness which has characterized all its applications of it. It places at the service of the individual student great collections of books, unexampled opportunities for scientific investigation and research, and brings him into personal contact with the acknowledged masters of thought over a great range of learning. It is clear that Germany's method of making great scholars, like that of England, involves vast resources. England has obtained her endowments mainly from the benefactions of the past. Germany has been able, during the present century, to develop her university system with unexampled rapidity through the substantial aid of the state. In this country, we are obliged to rely, for the most part, on private gifts.

It is not strange, therefore, that up to 1870 there was hardly the trace, in this country, of a systematic effort to make scholars, in the special sense of the word that I have been using. Prior to that time, our students, who during their college course had become imbued with the desire for something more, went to Europe as a matter of course, in order to obtain it. As these men returned to the United States in larger and larger numbers, they brought back the desire for similar developments upon this side of the ocean. As a consequence, a most marked development in higher education in this country during the last twenty years has taken place in the direction of university instruction. The most fruitful influence in that direction, in my judgment, has come from the Johns Hopkins University. Having the opportunity to start afresh, unhampered by traditions or complicating conditions of any kind, the Johns Hopkins University struck out for itself a new path, so far as this country was concerned, and brought to practical test the possibility of developing here a higher grade of scholarship than had previously been developed save in occasional instances. So far as practicable, the methods adopted were, in effect, those of the German university. The results which have followed this fruitful experiment are to be seen not only in the success of the Johns Hopkins University itself, but in the strong influence that it has had upon the older foundations, and the newer as well, in leading them to move in the same directions. Twenty years ago there was almost no graduate study carried on in the country. To-day it is a marked feature of the higher education everywhere.

Another influence having the same tendencies seems to me to have proceeded simultaneously from Harvard university. At a period considerably earlier than the foundation of Johns Hopkins University, Harvard began its tendency toward the elective system. Whatever criticism may be justly made upon the system in its application throughout the whole of the college course, there can be no doubt, I think, that its general tendency is to promote scholarship. You will all recall the notable paper by Professor Goodwin, read as the Phi Beta Kappa address at Harvard two years ago, in which he gave emphatic testimony to the fact that this had been its effect at Harvard. I do not know what were the specific motives that led to its use as a feature of all undergraduate work, but it seems to me to denote, in general, one phase in Harvard's development from a college into a university, in the stricter sense. The elective system does not of itself make a university, but it certainly is an essential feature of a university. It is the American expression of the German idea of the student's freedom to learn. As I have thought about it, it seems to me clear that at some point or another in the student's career the elective system is not only desirable, but it is essential. The question which is open to debate, in my own mind, is as to the point in the student's career at which this system has its proper beginning. I am not convinced that it is wisely applied without limitations at the commencement of the college course. I am prepared to admit that it may make for scholarship in a certain sense at whatever point it is begun; but it makes for scholarship, in part at all events, because it makes for specialization. An observation sometimes made concerning the Harvard graduates of to-day, as they are seen at Columbia, is that they are unusually developed along the lines to which they have given special attention, while, on the other hand, they are absolutely ignorant as to many things which we have been in the habit of taking for granted in college-bred men. In other words, after admitting that the system makes for scholarship, there yet remains the question whether it ought to be applied in the college course except under restrictions which secure the broad foundation of liberal culture such as our colleges used to give. Naturally, I hold my mind open to conviction upon this question, as upon every other question of educational concern. I state my first impressions, with great diffidence, simply for what they may be worth. On the other hand, whatever limitations may be considered wise as to the application of the elective system during the college course, there can be no doubt that its thorough-going adoption by Harvard university has been one of the most powerful influences affecting higher education in the United States during the last two decades. Even those who have not adopted it without reserve have been profoundly influenced by the fact of its use at Harvard. It has been found, I think, to have a legitimate value, not only in the direction of scholarship such as depends in large measure upon specialization, but also in helping the colleges, as I have already pointed out, to meet the pressure from new subjects that have demanded attention in the college curriculum.

If these views are correct, it seems to me that an important consequence will follow a careful consideration of them. The fact that a new aim has become consciously recognized in higher education in this country since 1870, does not signify in any degree that the old aim is not still as worthy of pursuit as it ever was. In my own opinion it would be a profound misfortune for this country if the effort to obtain at home what our advanced students could formerly only obtain abroad, should result in depriving our college men as a whole of the benefits formerly conferred by the American college. In a greater or less degree it may be said of all our colleges what President Dwight said the other day concerning Yale, that, "during all her history Yale had been a school for captains." The American colleges have not themselves made great scholars, but the American colleges have produced in great numbers broad-minded men of large views, of high ideals, and of a lofty patriotism. Scattered all over the land they have been everywhere as salt among the people, an influence, at once to preserve and to purify. I do not say that the two aims are altogether inconsistent with each other; but I do say that if the methods which will make captains will not necessarily produce scholars, so neither will the methods that make for scholarship necessarily be the best to produce captains. West Point is worth considering in this connection. The object of that school is specifically to produce captains, captains for the army, it is true, but still captains. To accomplish this result they do not adopt the methods which lead to pronounced scholarship. On the contrary, while thorough in their teaching as far as it goes, they lay great stress on discipline and required work. I am far from intending to argue that our colleges should be organized on the basis of West Point. Captains for civil life need not be trained as soldiers are. Nevertheless, I do believe that a great part of the value of the old college curriculum may have come from the fact that the work which it demanded from the students was required work. In other words, from the point of view of training, as well as from the point of view of retaining breadth in education, it seems to me that the ultimate college course, if there be such a thing, is likely to be found along some line that unites most successfully these two elements, that is to say, the element of positive requirement and the element of elective studies.

It would follow, also, would it not, if this presentation be correct, that every institution should ask itself in which direction its duty lies? The methods and the aims of a university and of a college appear to be so different that only a very few of the larger institutions can hope to unite both functions. The next quarter of a century is likely to throw great light upon the further question whether any institution can helpfully unite both functions. One thing seems already clear, that in any given case, if an institution can only do one sort of work well, it ought to confine itself to that work. A small college, as I conceive, can do college work as well as a large college. If it is fortunate in its faculty, it may even do it better. But no institution that cannot command vast resources in books, in apparatus, and in men, can hope to do university work at all well. Such a college may give something more to its graduate students than they get during their undergraduate course; but it does these students an injustice, if, by offering them a little at home, it keeps them from availing of the greater opportunities such as a thoroughly equipped university can offer. The best of our American universities are, in many respects, far enough behind the best European ones, in any case. Doubtless, we have already made great progress, and, doubtless also, as the years go by, we shall still further close up the gap; but it is idle to suppose that universities worthy of the name can be multiplied in this country as colleges have been. One of the most hopeful educational movements that has come to my attention is that which has been begun by the National Educational Association, to systematize and harmonize secondary education in this country. If the movement is wisely conducted to the end, as now seems probable, there is reason to look for the most beneficial results from it. When this work is finished, the next thing to be taken in hand ought to be the consideration of the proper relations between the college and the university. In the consideration of this question, also, there will be need for our best wisdom; and, in its solution, there must be a willingness to give and take on either hand. The great end to be reached, as I conceive, is something like a clearly defined educational system for the whole country, all the parts of which play naturally into each other. It is possible, of course, that the question will settle itself by the easy process of natural development. This, however, will not necessarily be the case. What I wish to emphasize is, that the problem before the higher education in its larger sense, in this country, is to fit into harmonious relations with the rest of the structure, this new thing, the university, which has begun to make its appearance since 1870. Time was when the college was the top of the educational system of the United States. It is so no longer, and it never can become so again. In that earlier period, the college was flanked on all sides by professional schools independent of the college and of each other, resting, for the most part, on no endowments and being supported by the fees of the students. In other words, it was characteristic of that period that professional education could be no better than could be self-supporting. In the last few years all this is changing. The demand for better professional education in law and medicine, for example, has resulted in continually lengthening terms, in courses running over more and more years, and in a standard of scholarship that rises continually higher. As a consequence, these professional schools are beginning to fall into their places as integral parts of the university of the future. So long as they continue to be supported simply by fees, their relation to the university has no significance and is purely nominal. When they share with the other departments of the university the strength that comes from the endowments of the university, then a new thing has begun to be seen in American education. It signifies that the day is not far distant when the professional education given by universities will be recognized as standing upon an entirely different plane from that which is to be had only under conditions that permit it to be self-supporting. This first step in our progress has already been taken here and there. In the union of the College of Physicians and Surgeons in New York with Columbia college, a most important step in that direction was taken. The professors in the medical faculty have been made as completely independent of fees as the professors in the philosophical faculty. They are now no longer required to conduct the school under the pressure of the necessity of making both ends meet. They are rather expected to set up and to maintain the highest attainable standard of medical education. The next step forward will require time for its accomplishment, but that it will be taken seems to be only a question of time. The prophetic eye can even now discern the day when a college education will be a condition precedent for entrance into the professional schools of the American university. This will not mean that only college-trained men will make good practitioners in law or medicine, for example, nor that only college-trained men are entitled to a professional education. It will rather mean, I think, that the university will then have fully realized its own obligation to the country to send forth into professional life, in all parts of the land, men of a thorough and wide equipment. It is impossible to produce such men in great numbers, without the necessary educational foundation. It is equally impossible to produce them if the standard is held down to the level that can be maintained without such a broad intellectual development to build upon. I am not anticipating this result in the immediate future, but that this is the end toward which things are tending seems to me hardly open to dispute.

Thus far, I have contented myself with observations on the things which I see. In closing, as one who has carried his college education out into the world, and tested it there, and who now has returned to the educational field to concern himself with the problems that are found there, I want to bear my testimony to the value of this thing which we call the higher education. It is doubtless true that the college graduate entering upon a business career is at a disadvantage during the first few years of his business life, as compared with those who entered business when he entered college. If, however, the man has a capacity for business, I venture to say that in five years, certainly in ten, he will find himself more than abreast of his friend who did not go to college. The trained mind can master the problems of business better than the untrained mind, as it can master other problems better for which it has itself any natural capacity. Beyond that, the man himself, outside of business, will have more resources, and is likely to be a greater power in the community in which he lives. When it is contended that college-bred men rarely succeed in business, it is to be remembered that it is currently believed that ninety-five per cent. of all men who engage in business sooner or later fail. It is only the select few in any department of human activity that conspicuously excel, and it may easily be that the tastes which lead men to go to college are not frequently found in combination with what I may call rare business genius. I venture to predict, however, that should such a combination exist, a college education, so far from unfitting the man for a business career, would make him a power in the business world beyond all his compeers who had not been so favored. But this is only a small fraction of the field covered by the college and the university. I have endeavored to point out that, to a certain extent, the functions of the college and the university are different. On the other hand, they are alike in this, that they testify to the people the value of intellectual pursuits, and they send forth among the people, in one department of life and another, an element whose influence upon the population seems to me to be almost wholly good. The atmosphere of both college and university is that of freedom. During all history students have been among the foremost to sacrifice themselves in the cause of liberty. The colleges and universities emphasize also with a single voice the importance of truth. They lead men to search for truth. They teach men fearlessly to follow truth wherever it may lead. They teach that no time and no country has been without its truth. They teach men to be modest in the presence of new discoveries, as they recall the vast obligations of our own age to the generations that are gone. They teach men to be sanguine in the anticipation of still newer discoveries, by acquainting them with the continuity of progress throughout recorded history. The university by its libraries and by its men, is at once the great conservator of human knowledge, and a chief instrument in extending its limits. If I were, in these closing words, to indicate another of the many differences between the college and the university, I should say that the work of the college is to teach that which is already known—the work of the university is, in addition to this, to inquire, to ascertain around the whole circumference what lies beyond the line that marks the limits of the known. Both of these are noble functions. No worthier career is open to any man than, in either direction, to give his small aid toward the great consummation.

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II

DEVELOPING LITERARY TASTE IN STUDENTS

It is a delicate problem to adjust the relation between independence and a deference to authority. In *belles lettres*, especially, what seems best to the taste and appreciation of those who are called literary, often fails to please ordinary readers. Subtler phases of thought, heightened style, moods lifted above plain emotions, or plain emotions made great by Wordsworthian simplicity, do not appeal to the majority even of intelligent people. The classics of our poetry and prose are not popular, and where they are read, what to a few appears their best is quite missed by most. These think carelessly, feel bluntly, and are not sensitive to art and beauty. Yet most of them can think and feel, and are in some measure susceptible to æsthetic pleasure. Their difficulty lies in not applying their faculties successfully to literature, or still more, in not taking the trouble to attempt it. Accordingly, they judge inadequately and incorrectly. Well, how far should those who believe that such judgments are partial or mistaken try to impress their own views on the majority—to convert them to their own tastes? Especially in the case of students, is "good taste" to be taught?

There is a certain class of refined people who say that it neither can nor need be. They themselves are acquainted with literature because they like it. If others care for it, let them read it. If not, there is no more reason why they should concern themselves with books than with bacteriology or harmony or philology, topics which everyone considers it perfectly genteel to leave to specialists. Assumed opinions seem to them like eye-glasses and ear-trumpets for the incurably blind and deaf. What social adventures are so annoying as to fall in with the critical ineptitudes of pinchbeck culture? *Poeta nascitur non fit;* neither can his audience be manufactured.

It is to be hoped that this is not the case; at any rate the *laissez faire* of cultivated exclusiveness is not to be commended. People interested in botany or numismatics, for instance, may well enough be indifferent about popular enthusiasm for such subjects, but there are the clearest reasons why it is unfortunate, more than unfortunate, for intelligent people not to care about *belles lettres*. Too much profit is lost if they are missed: too much profit, too much pleasure.

One of the pathetic aspects of life is that so large a number never come to realize its inner meaning, or their hidden selves. They would stare in perplexity at Browning's entreaty to be "unashamed of soul." They move about in a world not realized, spiritual somnambulists. That self-consciousness by which all operations of brain and heart are vitalized into a new and finer meaning, is shut away from them through their want of sensibility. This is true even of men with brawny intellects that produce results of great practical value, and also of people with a kind of heart which is full of amiable utility. There is a broad difference between what the personal life means even to these, and the enjoyment, the intelligence, the intensity of it all for such as contemplate what they see, and dream out of routine experiences, within and around them, mystery and beauty. De Musset's career as an individual was not a satisfactory one, yet it is impossible to think of it as wholly unenviable when we hear his exclamation, "C'est moi qui ai vécu"—I have lived, I myself. Now, the incomparable excellence of literature, especially in poetry, is that it penetrates beneath the crust of life. Commonplaces are translated, and we find ourselves interested by what we have scarcely noticed. Ideas and sensations are presented through another medium than the matter-of-fact. The appeal is made, less to mental than to sympathetic responsiveness. Beauty of various kinds is forced upon the attention, until sensibility becomes more sensitive, and its capacity expands. Not that literature creates any habitual exaltation, or that curiously wrought moods hover over our books. There is nothing especially tangible about this developed way of looking at things, nor is it in the least true that such a result is dependent upon reading. Yet there are multitudes whose finer sense has been quickened, who have taken a more serious view of important subjects which mean little when regarded only trivially, through the aid of the great writers; to say nothing of their having come to see their everyday world in pensive twilight sentiment, as well as in its meridian literalness. There is an immense difference between the hard pragmatic and the sympathetic contact with ideas. But how large a part of literature gives us more than ideas,—sensations. Through it we learn to feel, to feel through the whole scale of emotion, from soul to verbal form. Whatever stimulates a refined joy—stirs the imagination and keeps it abreast with clear sound sense,—vibrates to the voice of human personality, instead of being formal, mechanical, and barren of fruit for fresh warm life, is a part of literature's contribution to human progress. Even the mere contact with beauty? Certainly the aesthetic thrill is better than most things the world gives us.

In the light of such influences, any who are not anxious to develop appreciation for books, where it seems wanting, are deficient either in seriousness or in a sense of responsibility. But it is not easy to find the way in which this cultivation can be accomplished. Anyone whose profession has brought him into contact with young men by hundreds, knows to how many the grace and nicer meaning of poetry are locked and sealed. The first steps toward the desired results must be prosaic: people must train themselves, or be trained, to see what is on the surface, to grow conscious of metrical differences, for instance; not to remain quite blind to the real meaning beneath a figurative turn; even to come to recognize that there is a figurative turn. But nothing calls for more tact than how and to what extent to carry on this analysis. Observation and discrimination are indispensable, but literary drill runs a danger of concentrating the attention on fact as an end in itself. In most studies it may be so; in literature it is not.

This scientific age was sure to come to the gates of literary criticism with hands full of method and systematization. Finding how difficult it is to induce students to get at the heart of a poem (and, it may be, sharing in the difficulty themselves), many earnest and well-meaning students have settled upon the close and thorough study of literature from the standpoint of information and analysis. They teach and they make editions with an eye to grammatical, rhetorical, and linguistic instruction. They present clear formulated methods for examining style or argument. They present other authors' exegeses as matter for direct acquisition or as models for application to similar criticism. They annotate texts with elaborate explanations. Their treatment may appear satisfactory: for anyone can memorize, and learn how to apply formulas. It is possible in this way to acquire tangible results, and people are accordingly pleased to think that they are learning; they even may become interested in the details of the study. Especially, ambitious students with little turn for originality make great progress. Yet what does literature mean for them? Superficial knowledge, facts—no soul.

The startling contemporary growth of this so-called scientific study is natural both for teachers and students. As the professional class enlarges, the fascination of the very name of literature and the gentility of the pursuit of it, naturally attract many whose best aptitudes are for acquisition and systematization. There is nothing so much to be feared, by those solicitous for the growth of real culture in this great country's assured destiny of abundant education of some sort, as the ascendency in the departments of literary direction of such mechanically trained scholars. Their methods and industry are hopeless substitutes for inspirations of mind and heart. How inferior they are to that simple-minded absorption of the spirit of our best authors granted even to ordinary men who study them with old-fashioned receptivity! We need to pray for a generation not of minor scholars, but of intimate and sympathetic readers. Let them be less fluent in grammatical and rhetorical arts, and more capable of a quick and happy quotation. Let them be as unconscious of critical phrases and formulas of analysis as Shakspere himself was, and instead approach as closely as they may to the thoughts and feelings of his plays. The so-called "laboratory work" in literature may be deferred until scientists introduce literary methods into the laboratory.

So, too, about minute annotation of texts. Where they can be, allusions, dates, quotations, social or personal side touches, and the like, had better be looked up independently, if the reader desires to know them; and frequently—one almost trembles at the temerity of saying it—he is practically as well off without knowing them. If, for example, a line is quoted, why should the lightly touched passing illustration be made to distract his attention from the subject-matter by an excursus on its author and location? Why should he not go to one of our numerous recent dictionaries for an unusual word? Why should he be taught archæological details or verbal parallels here, while he is trying to learn how to read with his inner thought? A large number of teachers and edited books aim at making scholars, when they ought to try to make good readers. In every calling, technical difficulties become very dear to the practiced and expert workman, and the desire for thoroughness that is really the instinct of a scientific and orderly temperament must answer every question about allusions, origins, and verbal or archæological suggestions. Indeed, there is a place for this; the advanced and special student ought to understand them. It is easy enough to obtain a scholastic equipment when the right time comes. The difficulty is not in using the routine power of brain, but in getting into touch with one's creative consciousness of mind and heart. If the literary neophyte's attention is directed too largely toward facts, he may mistake the means for the end, and as a result of his training find the principal object that confronts him as he takes up new works, nothing spiritual and æsthetic, but only the task of obtaining exterior information, hunting down quotations, dates, and allusions, surveying a poem by the rod and line of a technical phraseology, detecting parallels, and baying at the holes of conjectural originals, finally to emerge from his studies learned, but not literary.

For infinite as is the value of its substance, the essence of literature is beauty. No slight part of its profit rests in the refining influence of its pure loveliness, and in the pleasure which its sweetness and art may add to our lives. To study it mechanically is like grasping a butterfly. It is all there in one's hand, all the "weight and size"; but alas for the one who supposes that this slender, quivering body which he holds is the winged color that flew. And this is just where the mistake is made by those proselytes from Philistia who attempt to conduct educational services in the temple of culture.

The aim, then, for most readers should be to acquire the art of sympathy. The first step toward this, if it does not come naturally, is to read some poem that pleases, until one is thoroughly familiar with it and can call up one and another line here and there, without the book. Then at odd times when one is not in too strenuous a state of mind, to try (if I may employ a word rather poetic for prose) to try musing upon what one remembers of the poem; not disappointed, if no very tangible result shall appear. By and by, when a sentiment has started, through which one begins to have some warmer feeling for the passage, it is well to go over the lines thoughtfully, scrutinizing their meaning, and endeavoring to ascertain the values of minor touches. Poetry should be read aloud, or at least the ear should be trained to follow a silent reading with the closest attention. One of the most interesting and at the same time helpful devices for close knowledge of a piece of literature, is to think out certain topics, such as what clews we find to a knowledge of the author himself; what suggestion we can note of this or that taste or opinion; in what lines his heightened style appears at its best; where he is most happy in fancy or in cadence. Such topics are interesting and instructive for themselves, and while we consider them we are growing more penetratively familiar with the work before us, without introducing any methods that are mechanical and intrinsically unimportant. if not repellent.

Anything, in short, that is sympathetic and personally stimulating, contributing something of richness to our knowledge and feeling of art, thought and life, is a good exercise in literary analysis. The point of view should be shifting, however, and the treatment flexible.

But although, so far as the primary value of literature goes, facts are nowhere of less importance, there comes a time when a wider and philosophical study is valuable and most interesting: such as observing the forces by which a great period or a great individual has been produced, or inquiring into the ways whereby schools of letters or single authors fall short through unfavorable antecedent or contemporaneous influences; or the biographical knowledge which adds personal interest to an author's work, and makes it more intelligible; or a study of his development, as we follow his writings chronologically. But large numbers of readers are not born for such pleasures and privileges, and many who might enjoy them have too little time; while others who pursue them miss the central good, by that old danger of mechanical and harshly intellectualized study. The most laborious students are frequently the most indolent, so far as interpreting what they read in terms of their own thought, soul, and sense for beauty.

Emerson says somewhere that at a performance of *Hamlet*, to which he had looked forward with great interest, he noticed nothing after the cry:

> What may this mean,
> That thou, dead corse, again in complete steel
> Revisit'st thus the glimpses of the moon,
> Making night hideous, and we fools of nature
> So horridly to shake our disposition
> With thoughts beyond the reaches of our souls?

Fancy the philosopher poet, his fine face bent down from the stage and the brilliant theater, as he sits possessed by the power of the lines, the magic of their nature touch, the solemn infinitude of human mystery which they suggest. When a passage becomes in this way our master, absorbing us with its appeal to heart or mind or sense of art, then we are getting into the reality of poetry, and the key to it all is the cultivation not of brain, but of sensibility.

The fact that this is so impalpable makes it unteachable. Evidently, too, reading literature so perfectly is unusual and fortuitous. The great advantage of having poetry by heart lies just here, that when we are in the mood for this or that thought or sentiment, it comes to us, and is more a part of ourselves than when we untie it from printed words. Yet if we do not often enjoy such an Emersonian ecstasy, in a lower degree we are constantly susceptible to the vital interpretation of literature, as we more steadily apprehend that our highest study is not to acquire views or facts, but sensations. To this end, we must attend shrewdly, observing even minute details, since one never knows whether there is a secret for him here or there. We must listen for the note of personality. We must relax intellectual rigidity and read sympathetically. If a poem affords no sense of beauty, we must understand that we have read it amiss. To me it seems incomparably better that anyone's accidental moods should be haunted by a subtle or noble thought, or by a line that has soul or music in it, than for one to be a master of learning.

Important as it is that the interpretation should come from within, outside guidance is helpful. Many may receive hints from a comment upon a line, or a development of an author's less obvious traits, through which they will see what they have not seen. To such critical comments as Hudson's, for instance, some of us are increasingly grateful, if for nothing more than the service they did our early reading, in making us feel that there was a moral fascination in passages where our careless perusal had seen nothing. Of all American editors, Hudson (though intellectually unreliable and clumsy, and anything but a great man, save for his sometimes erring love and sympathy) has rendered the best service by stimulating to see the beautiful, not so finely on the side of art, but admirably on the ethical side. "Sign-post criticism" is scoffed at by many who do not need it; but compasses are constantly required, in spite of the world's Giottos.

But then, as readers develop, critics whose discrimination and æsthetic faculty overtop such writers as the one just named, afford great pleasure and assistance. When we are thoughtfully familiar with an author we enjoy listening to another and stronger student's comments upon him. Often new ideas are suggested, and we occasionally are quickened into an independent thought by the seemingly accidental stir of mind, perhaps even in resisting a view with which we do not accord. Some critical essays also have the nature of creative literature. There is the liveliest intellectual delight in coming in touch with an elegant and sympathetic mind, giving utterance to his sense of the charm and significance of an author whom we ourselves have felt. Even if there is nothing new, we enjoy the play of happy phrase and nimble association; we enjoy the sense of intelligent and refined companionship. But when a new lode is opened before us—meanings and graces unguessed before, aside from our absolute acquisition, how profitable is the sudden discontent with our dull, creeping, inattention! From interesting criticism, too, the desire for first-hand knowledge may be acquired, and convenient, if not at times necessary, guidance in selection.

But the most profitable criticism is that broad and philosophical general discussion which is illustrated by such authors as Coleridge or Arnold. Such passages put us on the track of what we need to recognize, if we are to appreciate the higher literature on both its sympathetic and intellectual sides, without the disadvantage of offering to do our thinking for us in specific application. They call our attention to points which, after we have once noticed them, we find constantly recurring in our reading. Our literary life is made richer by observing them. They suggest topics which it is stimulating to think out. By bringing us in contact with a more theoretical and æsthetic range of ideas, they widen our intellectual and artistic world. They lead our commonplace taste to a just view of what it is right to admire. Nor is it a trifling service that they set before us various phases of the history of literature, one of the most fascinating and profitable of all studies.

Yet in reading even the most admirable criticism, we need to keep constantly in view our personal relation to literature. All aids, are only instrumental to our close and loving companionship with authors who will make our lives more agreeable, more thoughtful, more sympathetic. Especially in poetry, it is the aim of all study to enable every reader to be his own critic, and thereby ultimately to be, we may say, his own poet. For the finest thoughts, most newly and perfectly apprehended by a great writer's intellect and emotion, and best expressed, realize their highest mission only when the reader becomes to them the creative artist, and takes them up as Shakspere took the crude work of his predecessors; so that by a personal interpretation and heightening, a noble plagiarism, the poetry of thought, feeling, and style is sung by himself to himself alone, in that inner language which we so rarely employ, yet which we surely have employed whenever a poem has flashed from book to brain and soul, and become a mood, a picture, or an inspiration. Yet the levels of literary pleasure are more usual than the heights, and a considerable part of our interest in books is more reflective than emotional. But never unsympathetic; never, if what we call literature is really so, will it yield its best unless we approach it in a spirit not of fact but of sensibility. It will render us more of itself, as we bring to it more of ourselves. Its great gift is in expanding and satisfying our finer nature, and as we grow in refinement of brain and delicacy of feeling, we shall appreciate how well the effort pays of learning it, instead of learning about it. There is a line of Matthew Arnold's, regarding life in general, in which for myself I constantly sum up the true art of interpreting literature:

> Think clear, feel deep, bear fruit well.

For surely out of an intimacy of mind and heart with those who have drawn most thought, feeling, and beauty out of life, the fruit of a happier and better character can hardly fail to be born.

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III

STATUS OF THE HIGH SCHOOL IN NEW ENGLAND

The work of the high school is determined in nature largely by the fact that it has to meet the wants of two distinct classes of pupils: those who expect to complete their formal education under its care, and those who wish to be prepared to enter upon technical or collegiate study elsewhere. As the high school is maintained at public expense, and as one of these classes of pupils is large, and the other eminently respectable, it has been found expedient to consult the wants of each. Experience has proved that this course rests upon a higher wisdom than expediency—that the daily association of those in the "academic" and the "college preparatory" courses has been of mutual advantage. Only four cities in New England provide separate schools for those preparing for college, and in three of these the unwieldy size of a single school made a division necessary, and with the division came the differentiation, not as a cause but as an accompaniment.

The articulation of the high school with the grammar school—which has become so close—the equipment of the high school in instructors, building, apparatus, and available libraries, and, above all, its superior adaptability to the needs of its constituency, have conspired to make it in New England without a rival in the education of those who do not intend to pursue their studies beyond the bounds of the secondary school. The few endowed schools that profess to offer to pupils of this class advantages superior to those of the high school, are situated chiefly in towns that have no high schools, and are in some instances aided by public money that would go to the local high school, if there were one.

In general, the private and endowed schools make little direct effort to secure the attendance of the class of pupils just mentioned, but seek to attract those who wish to prepare for institutions of higher grade. The number of such schools reporting to the United States Commissioner of Education is, in New England, the same as the number of cities and towns, of three thousand population and over, that maintain public high schools. A comparison between the work done by the public schools and by the private schools in fitting students for college would show how fully the high schools are meeting the demand made upon them by the second class of pupils named. During the month of October last a letter of inquiry was sent to the principal of the high school in every town of three thousand inhabitants in each of the six States. A few smaller towns were also included, but no attempt was made to get complete reports from these, as comparatively few of the schools in such towns do college preparatory work with success. The same letter of inquiry was sent to the principals of most of the private schools whose statistics were not accessible in catalogues. The first question was as to how many students had gone directly from each school to each of the New England colleges within the last three years.[1] The schools were also asked to report the number sent to the Massachusetts Institute of Technology; it was assumed that the data for this would fairly represent the work of the high schools in preparing students for the pursuit of technical courses. So many principals volunteered more detailed replies that it is safe to say that the proportion of students sent by high schools to Chandler, Lawrence, Sheffield, Tufts (Engineering), and the Worcester Polytechnic is greater than that reported for the Institute of Technology.

Replies were received from principals of high schools representing in each State approximately ninety per cent. of the population concerning whom inquiry had been made. The reports received are given below in Table I. This table includes only those sent fully prepared to enter the regular courses; all reported as special or partial course students are omitted. In the column giving the average size of the freshman class in the colleges, only those living in New England are included, in order that the comparison may be made between the work of the public and the private schools in fitting residents of New England for entrance:

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[1] In order to secure a fair *average*, the smaller towns were asked to report for four years, while eight or ten large schools, whose yearly number is nearly constant, reported for one year only. In cases of doubt further inquiry was made before these were reduced to three-year averages and included in Table I.

TABLE I

AVERAGE ANNUAL NUMBER OF STUDENTS SENT TO COLLEGE BY PUBLIC HIGH SCHOOLS

Number of high schools that have sent students to each college since May, 1890							COLLEGES	*Average annual number sent*							*Average annual number of freshman class living in New England*	*Per cent. of those living in New England prepared in high schools*
Total for each College	*Maine*	*N. H.*	*Vermont*	*Mass.*	*R. I.*	*Conn.*		*Maine*	*N. H.*	*Vermont*	*Mass.*	*R. I.*	*Conn.*	*Total*		
46	4	2	1	32	2	5	Amherst	1⅓	2	⅓	22	2	2	29⅔	56	53
12	6	4	..	2	..	..	Bates	14	1⅓	..	1⅓	..	..	16⅔	48	35
48	5	3	2	37	..	1	Boston University	1⅔	1⅔	1⅓	39	..	⅓	44	70	63
20	19	1	..	..	..	..	Bowdoin	22	⅓	..	..	..	..	22⅓	52	43
30	1	2	2	15	8	2	Brown	⅓	1⅓	1	10⅔	34⅔	⅔	48⅔	89	55
18	13	..	..	5	..	..	Colby	22	..	..	3⅓	..	..	25⅓	52	49
36	2	13	7	12	2	..	Dartmouth	1	20⅔	4	6	1⅓	..	33	58	57
53	4	3	2	39	2	3	Harvard	2	1⅓	1⅓	115	1⅓	1⅔	122⅔	262	47
6	..	..	3	3	..	..	Middlebury	..	..	6	1	..	..	7	20	35
40	6	3	2	20	2	7	Mt. Holyoke College	2	2	1	10	1	4	20	36	55
68	4	11	2	39	4	8	Smith	2⅓	6⅓	1⅔	56	4⅓	12	82⅔	110	75
9	..	1	2	2	1	3	Trinity	..	⅓	⅔	⅔	⅓	3	5	12	42
27	4	2	1	20	..	..	Tufts	1⅔	1	⅓	14⅔	..	..	17⅔	25	71
10	..	..	8	2	..	..	University of Vermont	..	..	24	⅔	..	..	24⅔	49	50
80	10	6	4	44	6	10	Wellesley	6	4	2⅓	40	4	5⅔	62	89	70
18	3	1	..	7	1	6	Wesleyan	1	⅔	..	4	⅓	9	15	42	36
26	1	2	4	15	..	4	Williams	⅓	1	1⅓	8	..	1⅓	12	33	36
32	2	..	1	13	1	15	Yale	⅔	..	⅓	9⅔	1	48⅓	60	87	69
*	25	15	13	84	9	18		78⅓	44	45⅔	342†	50⅓	88	649	1190	55‡
76	11	6	5	40	5	9	Other Colleges	6	5	8	56	3	7	85	..	..
79	7	5	1	60	4	2	Mass. Inst. of Technology	3⅓	3⅓	⅓	96	1⅔	⅓	105	184	57

* The figures in this half-line give the number of *different schools* included in this part of the report. About twenty more schools are included in the figures given for the Massachusetts Institute of Technology.

† In making a comparison by States it should be noted that three-fifths of the population of New England living in cities and towns of 3000 are found in Massachusetts.

‡ This would without doubt be raised to sixty per cent. or more if all the schools had reported.

This table brings to light several interesting facts, among which may be noted the relative predominance of the local or State constituency in each college, and the relatively large number of schools that send students to the larger colleges. From these it is a fair inference that it is the free choice of the pupil rather than the limitations of the school that determines the college for which he prepares—that the reason certain schools do not send more students to certain colleges is that their pupils prefer to go to others, and not that the school is unable to prepare them for any college.

That the colleges for women should be more closely connected with the high schools than are the colleges for men is to be expected.

The proportion reported for the three Maine colleges is noticeably below the general average. It is not, however, to be inferred from this that the public schools of Maine are correspondingly inferior. Replies received from the private schools that are the recognized "feeders" of these colleges fail to account for as large a percentage of the students as the high schools report, and the quota from the other well known academies barely makes the numbers equal, thus leaving about fourteen per cent. unaccounted for. It is probable that these are drawn about equally from small private schools and from public schools that failed to reply.

Wesleyan, Williams, and Middlebury appear to be the only colleges that fail to attract a fair proportion from the public schools.

Among the "other colleges" reported are Columbia, Princeton, Cornell, Oberlin, University of Michigan, Barnard, Harvard Annex, Vassar, and more than twenty others. Many students are also reported as sent to schools of law, divinity, and medicine.

It is more than probable that the percentages given in Table I would be materially increased if it were possible to secure reports from all the schools. No data are at hand for ten per cent. of the population in towns containing over three thousand, or for the towns smaller; and in these smaller towns dwell sixty per cent. of the population of Maine, over fifty per cent. in New Hampshire, over seventy per cent. in Vermont, not far from ten per cent. in Massachusetts, twenty per cent. in Rhode Island, and nearly thirty per cent. in Connecticut. In Massachusetts alone about two-fifths of the high schools are in these smaller towns. Though only a very small proportion of such schools prepare pupils for college, their aggregate, if it could be had, would be worth recording.

The private schools of New England may be roughly divided into three classes: (1) The old endowed academies that have become famous as preparatory schools for the older colleges; (2) the denominational schools, which, though not sectarian, owe most of their financial support and the larger part of their pupils to the favor of one of the religious denominations; and (3) the academy, fully or partly endowed, that has made the organization of a local high school unnecessary, and attracts a small proportion of its pupils from the surrounding towns. A careful compilation of data from the catalogues of a large number of these schools, shows that they are patronized by comparatively few pupils from towns large enough to support a good high school. It has not been possible to get a complete file of these catalogues, but a statement of the facts for a few typical ones will indicate the nature of the constituency of the endowed schools.

The academies at Exeter and at Andover fairly represent the best schools of the first class. Their latest catalogues contain the names of 676 young men; of these 370 live outside of New England, 47 live in the villages of Exeter and Andover, 147 live in cities and towns that presumably have good high schools, and 112 live in towns of less than 3000 inhabitants. The catalogue of one of the larger and more prosperous schools of the second class contains 194 names: 26 from beyond New England, 45 from its local city, 53 from towns of over 3000, and 70 from towns of less than 3000. The catalogue of a coeducational school of this class contains 317 names: 20 from beyond New England, 117 from the local town, 12 from towns of over 3000, and 168 from towns of less than 3000. Although full data are not available, it is far within the truth to say that less than twenty per cent. of the total enrollment of the private secondary schools comes from towns that maintain a high school giving even passable preparation for college.

The most direct way of determining to what extent the high schools are meeting the wants of those who wish to enter college seems to be by a comparison like that given above. In order to ascertain what confidence the colleges have in the work of the public schools, each principal was asked to report how many of his pupils had entered college upon his certificate within the last three years. The replies were nearly as complete as to the first question, and are given below.

TABLE II

PROPORTION OF HIGH SCHOOL STUDENTS ENTERING COLLEGE UPON CERTIFICATE

	Number reported entering colleges that accept certificates	*Number admitted by certificate*	*Per cent.*
Maine	262	45	55
New Hampshire	144	112	78
Vermont	151	106	70
Massachusetts	579	334	56
Rhode Island	138	104	75
Connecticut	107	78	73
Totals	1381	879	64

Others—perhaps five per cent. of the total number—were admitted partly upon certificate. Though the proportion admitted from private secondary schools might vary somewhat for the separate States from that given above, the general average for New England would probably be about the same. Without doubt, the colleges that accept certificates admit two-thirds of their New England students in this way.

The surest criterion of the status of schools of any kind or grade is found in the equipment, experience, and permanency of the teaching force. The data upon which Table III is founded are so nearly exhaustive—within the limits chosen—that its conclusions may safely be accepted as final. Those reported in the right-hand column of the Table have taught in the same school from five and one-third to thirty-seven years: the average term of service of these would be nearer ten years than five. No account is taken of special teachers of music, drawing, or manual training.

TABLE III

SHOWING THE EQUIPMENT, EXPERIENCE, AND PERMANENCE OF THE TEACHING FORCE IN THE PUBLIC HIGH SCHOOLS

	Total number reported	*Per cent. who are college graduates*	*Per cent. who have not more than a high school or normal school education*	*Per cent. who have more than three years' experience*	*Per cent. who have more than five years' experience*	*Per cent. who have taught more than three years in their present school*	*Per cent. who have taught more than five years in their present school*
Maine	120	47	25	74	61	43	28
New Hampshire	74	66	15	67	47	48	27
Vermont	59	51	32	65	42	24	12
Massachusetts	658	56	18	84	73	55	42
Rhode Island	69	66	21	80	56	47	33
Connecticut	156	52	16	71	64	52	31
Average		56	21	73	57	45	28

There is no reason for believing that the private secondary schools would as a whole make a better showing; on the other hand, there are several facts that tend to indicate the reverse. It would not be wise, however, to make any definite assertion without full reports, and these some of the private schools are loath to give.

The status of the high school in New England may be briefly summarized as follows:

It is generally conceded that it gives, to those who do not go beyond the secondary school, a better education than other schools offer them. The public schools are far from perfect, but new attempts to compete with them are not commonly successful.

The public high schools annually prepare for entrance sixty per cent. of the New England students who are admitted to New England colleges. The wide extent of the privilege of certification that the colleges grant them is an evidence that their students are prepared to do the work that the colleges demand. The *personnel* of their teaching force is not surpassed, and possibly not equaled, by that of other schools of like rank within the same six States.

The indications are that the development of the high school is more than keeping pace with the growth of New England in wealth and population.

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IV

RELATION OF ARITHMETIC TO ELEMENTARY SCIENCE

The introduction of elementary science into the grammar and primary grades of the public schools is destined to mark an important epoch in the history of school-teaching in this country. The scope of the work included under the head of natural science is so great that anything like a general introduction of it into the lower grades will necessitate a thorough reorganization of the course as it has long existed and now stands. The greatest problem at this time, therefore, is one of readjustment, and it is not easily solved; for the present course of study, as usually laid down, is fortified not only in the wisdom, but also in the prejudices and traditions of the past. The reorganization will be accomplished partly by a displacement of some of the studies once considered essential, but chiefly by a readjustment of the parts so that the course will form an organic whole.

In this age of doubting and questioning, when the search-light of reason is turned upon every creed and custom, the assumption is that unless a subject can show a stronger reason for its place than may be found in the homage it has received in the past, it will have to give way. Not much room can be hoped for, however, in this direction, for experience has shown the desirability of retaining in the course the greater part, by far, of all that is now taught. If any new subject, therefore, is to enter the sacred circle of the present curriculum, it must show itself capable of entering into organic relation with most of the subjects already there.

That a full line of science work is soon to be a part of the regular school programme no one can any longer doubt; and the question which must be settled for the teacher, and by the teacher, is, what relation does it bear to the work already being done? The basis upon which the answer must rest is found in the nature of mental action. In mind movement we may logically, if not actually, discern the thought, and the form embodying it or through which it is expressed. All studies, then, naturally fall into two divisions which may be distinguished as *thought* studies and *form* studies. As it is difficult to conceive, much more to define, thought independent of the form through which it is expressed, so it is difficult if not impossible to exactly define and precisely distinguish thought studies from form studies. Logically, such a distinction does exist; actually, however, in ideal educational methods it does not. How far we are and have been from such an ideal, the present bootless pursuit of pure form work will testify. Form studies have always been held to be of great value as a means of discipline; thought studies are those which deal with knowledge that is in itself intrinsic, with knowledge which is of present absolute worth to the possessor independent of the form by which it is gained and retained. Thus one may learn with varying clearness, by means of a model, a drawing, a painting, a written or oral description that alcohol in large quantities is injurious to the membrane lining the stomach. This knowledge is of intrinsic value to the individual, and is the same in kind, though not in degree, by whatever means it has been gained and is retained.

Logically distinguishable from these thought studies—but not actually separated from them—are what may be, for convenience, termed form studies. Form studies include all the different modes of expression: making, modeling, painting, drawing, written language (associated with which are reading and spelling), oral language, form, and number. The relation of form studies to thought seems to be this: external energy, referred to some object as its source, arouses to activity the nerve centers, and the individual then vests this externality—the source of the energy—with color, form, outline, size, weight, density, odor, and all other distinguishable properties, according to the sense or senses through which the energy acts. Thus, from some object, energy of a certain kind reaches a nerve center through the eye; the mind then vests the object—the mediate source of the energy—with color. Again, the object is placed in contact with the finger tips; now the energy, of which the object is the source, reaches a nerve center through the sense of touch and the mind vests the object with form and density, and so on throughout the entire course of observation. This action of the mind may be guided somewhat by oral or written description, and by a careful comparison with facts already in experience, and thus, the thought gradually becomes a definite product in consciousness. At the same time, as it becomes a more closely approximating mental correspondence to the source of the energy, the thought clears up and becomes definite in consciousness.

It is of the greatest importance that all concepts be formed in the mind with readiness, accuracy, and completeness. The rate of mental development is absolutely determined by these three conditions. The readiness with which concepts are formed depends upon the alertness, the all-sided sensitiveness of the body to all the forms and varieties of energy, which impinge upon it and condition thought. Readiness is dependent primarily and largely upon physical and physiological conditions.

Accuracy in forming concepts depends upon two things: first, upon the power of the mind to distinguish all the different forms and varieties of energy from each other; as, for example, to distinguish colors from sounds, and to discriminate between blue and pink; second, it depends upon the mind's power to determine the limitations of the energy acting upon it; that is, the mind must not only measure or exactly estimate in some way the value of each form of energy in itself, it must also determine its relative value to all other forms with which it is associated, if the concept is to be clear. Thus, for example, when I look at a box, if I properly apprehend and estimate the energy received by the eye, I get a correct idea of its outline; and in the same way if I properly estimate the energy received when it is placed in contact with my finger tips, I get a correspondingly definite idea of its density and form. This determination of the limitations of the energy is always done through a comparison with a standard measure. Accuracy is dependent upon the power of judging, and therefore upon psychic conditions. It is the absolute necessity for accuracy *that gives rise to the demand for the mathematical element in education.*

The completeness or adequacy of the concept is determined by the power of the mind to grasp and retain the relations which the various forms and varieties of energy bear to each other. This is also dependent upon psychic conditions.

The function of the teacher would therefore seem to be purely a directive one ; he may create conditions, and, granting that their arrangement is the best possible (though for no two pupils, perhaps, would the arrangement be equally good), he has absolutely nothing beyond a directive power in determining the readiness, accuracy, and completeness with which the pupil shall gain a concept.

The weakest point in all teaching of the present time lies in that part which relates to the accuracy of the concept. All teaching must be quantitative, not alone qualitative, using these terms in the laboratory sense ; and there is, therefore, a constant and positive demand for the mathematical element in education. It is the function of the studies of form and number to meet this demand for accuracy, and they can claim a place in the common school curriculum for no other purpose whatever. This classes them, then, from the pedagogical standpoint as *form* studies, as distinguished from *thought* studies, and it is as such that they are here to be treated. That two multiplied by two multiplied by two equals eight is not of the slightest consequence in itself ; but when it is said that the box is two feet long, two feet wide, and two feet deep, the value of one's knowledge of the box is greatly increased. And when, still further, it is said that all the angles are right angles and that all the lines are straight lines, the mental correspondence is a close approximation to the real thing. Of course to the educated mind, distance, angles, and lines are matters of experience, and the mere mention of the appropriate terms and units is enough to enable it to clear up the concept of the box. But the case is different in the young and inexperienced, in whose mind the notions of lines and angles and judgments of space and distance are almost totally wanting. The whole question at issue is, shall the attempt be made, first, by means of this, that, and the other ingenious device and by use of objects to which the child is more or less indifferent, to give the child the notions of lines and angles and judgments in number, to create in him a stock in trade which he may use when he finds occasion, or shall these notions be developed to meet the necessities arising from legitimate observation at the moment when the demand is most imperative?

In considering the question it is interesting and instructive to note that, within the memory of those now living, it was almost universally held that all form studies should be pursued in the beginning for their own sake: first, because of their extraordinary disciplinary value; and second, that the mind might early be provided with a lot of skeletons upon which to build flesh in after life. But there is to-day a considerable number of teachers, and the number is rapidly increasing, who believe that reading, for example, need not be taught except as the necessities of developing thought demand it, and yet, that it may be thus taught well; that to teach spelling it is not necessary to isolate all the words in the language and write them in columns in a separate book to be conned and committed; who believe that enough practice to teach writing, drawing, painting, and modeling will come in the proper use of the material used in connection with legitimate thought work. Some teachers have worked out the problem in one direction and some in another; very few or none have carried out the principle along all lines of form work. Enough has been done, however, to establish the validity of the principle and to show its practicability in connection with all the subjects named. As to tangible results, there has been perhaps as much failure as success; but if there has been success in one instance even, and that, too, only under ideal conditions, the validity of the principle is established, the true ideal is furnished, and all we have to do is to work as best we may toward it. The failures have been wholly due to lack of skill in presenting the thought, or in the failure on the teacher's part to grasp the real scope of the thought to be presented.

The only subject which has not at this time yielded to the operation of the principle just enunciated is number. Arithmetic—and form also to a less degree—more strongly than any subject, stands intrenched in the dogmas and traditions of the past. So long has it been enthroned in every schoolhouse, and in the heart of every teacher, as *the* great subject to be taught, that it now stands aloof and apart in a state of almost complete isolation. When one looks back over his school-days, no other subject looms up in such proportions as arithmetic. It is the one thing which consumed his time and absorbed his energy. Goaded on by the promise of future reward, we unceasingly and unlovingly toiled. But now, when in later years we stretch out our hands to seize the promised reward, we find it turns to ashes. It is no wonder then that an outraged generation grown to the estate of manhood, should cry out against arithmetic and seek to drive it almost wholly from our schools. And still further it is proclaimed that the time spent upon number in the schools is wholly out of proportion to the demand made for its application in after life; that while little was received, now Heaven be praised, less still is needed; and the conclusion in either case is that the time given to arithmetic, number teaching, must be reduced.

It would be most interesting to stop here and scan the pages of the history of education to find how it is that arithmetic gained the prestige it has so long enjoyed. The reason is clear. The magnificent achievements in science, through the application of mathematics, of such men as Kepler, Newton, La Place, and others gave to humanity such splendid ideas of the members and forces of this universe, and rendered our knowledge of them so clear and definite, that the world has ever since been awed almost into worship of even the means they employed. Think of the richness which mathematics possessed for such a man as Newton! his every calculation fixed for him a star in the heavens; it set the time and places of the planets, and measured the force which holds them swinging forever in their orbits. By the aid of mathematics, Newton was able, more than any other man from the dawn of creation down to his day, to penetrate the remote recesses of this universe and to read the secrets of the Almighty.

Turn now from the contemplation of such a mind, filled with this orderly array of knowledge gathered from every corner of the universe, to a consideration of the store in our minds. What has our mathematics done for us? Has it opened up and rendered clear for us anything in this magnificent world about us? Did the study of mathematics give us any clearer notions of the forces that focus upon us and condition our existence? Did our arithmetic put anything into our lives which gave us a broader and better outlook into nature, and rendered our existence freer from superstition and more neighborly with the truth? In so far as it has failed to do these things, we have been the victims of a fraud.

That there should be any attempt to decry arithmetic teaching in the schools, brings us face to face with a desperate situation. Those who believe that they see in the different studies of the common school the necessary and organic elements of a symmetric whole, must push forward to the rescue before some iconoclast rises from the long-suffering public and by some arbitrary act deprives us of the power to organize the reform. Those in the past who gave mathematics its place of honor among studies were driven to the study by their thoughts about the universe. By means of mathematical calculations, their indistinct notions became clear and definite ideas. So should it be with the pupils in the public schools; all thought studies actually demand mathematical work that thought itself may become clear. It is the function of form and number study—that is of the *mathematical element* in education—to give accuracy and exactness to ideas; to render hazy notions clear, and to evolve the definite from the indefinite. The man who says that he can go through any and all walks of life without this mathematical element as safely as he can with it, is most blindly and grossly self-deceived. Nearly all, if not all, the failures of life come to us because at some point in the train of our calculations our ideas were not exact. The reason for our neglect in this direction is that we were not led to see the value of such accuracy in quantitative work when in school. Almost all school exercises are qualitative only; they do not demand *definite* amounts of anything. Despite the fact that arithmetic has in the past and does now as a rule take far more than its share of programme time, yet it may be safely affirmed that true education in accuracy, the cultivation of the mathematical powers of the mind, has been and is grossly neglected.

The long isolation of number work from everything else has not only been hurtful to all other subjects thus deprived of its assistance; it has proved to be terribly self-destructive. In trying to preserve itself upon its pedestal of self-conceit and self-sufficiency it has been driven to most absurd lengths to obtain materials for subject-matter, and it has pressed upon teachers methods of instruction that in many cases are simply senseless. It requires but a passing glance at any arithmetic that one may pick up to see that the subject-matter in arithmetic is as bad or perhaps worse than it ever was in the case of reading, drawing, or writing. It is not an exaggeration to say that at least ninety per cent. of all the exercises given in an average arithmetic fall into one or the other of two classes: 1st, those which deal wholly with abstract operations, and 2d, those which deal with material absolutely outside the experience of the pupil. A few examples will illustrate this point. Open any arithmetic and count the weary pages of such problems as "what is $\frac{1}{3}$ of 6? $\frac{2}{3}$ of 9? $4+8$? $13-4=?$ $\frac{1}{3}+\frac{1}{8}=?$ $\frac{1}{6}+\frac{1}{7}=?$ $2\frac{2}{3}-\frac{3}{4}=?$" *ad nauseam.* It serves no purpose for the teacher to say that he or she can create and sustain an interest in such work. Everyone, doubtless, has been very much interested in just such problems, but if they are of intrinsic value, then why is it that all interest in them is lost the moment the pupil reaches the years of reason and accountability? A subject of intrinsic value never loses its interest. We gain a little from it when we are young, and that interest deepens and intensifies with age. The truth is that the young mind is so inherently active, it is so ready to grasp everything, that we frequently mistake the buoyancy of its self-activity for genuine interest in the subject in hand.

Turning now to the second class of problems alluded to above, namely, those which deal with material beyond the experience of the pupil, the same dreary waste of pages may be found. It is within the bounds of truth, perhaps, to say that nine-tenths of all the so-called concrete problems found in our arithmetics deal with questions of values. This is a mistake as fundamental as it is singularly perverse and unfortunate, as a little consideration of the subject of values will show. Value is wholly relative, and it grows out of the fact that man is a social being. From the very nature of man's social relations there must arise necessities for exchange among the different members of the community, and thus business relations are established, and, growing immediately out of this is the question of value. Now it is universally conceded that, while adult man willingly subjects himself to the laws which the necessities of his social relations place upon him, the child does not recognize any such bans. And since his notion of business necessarily develops much later, it follows that his idea of value under ordinary circumstances must be late in maturing. This is merely the statement of a fact with which all are more or less familiar. An average third grade boy on the south side of a building on a warm spring day would not exchange his pocketful of marbles for a corner lot unless he saw immediate prospect of reconverting it into marbles again. And yet that same boy through all time has been expected to solve problems relating to the sale of lands and estates with all the ease of a real estate agent of long experience. They are not much older when they are expected to solve problems relating to banking, taxation, insurance, and stock exchange, of the real nature of which they can have absolutely no conception whatever.

Of course it will be maintained that the notion of value must be developed. This is true, but let no one deceive himself by supposing that he is developing the idea of value in his pupils when he is having them solve problems in which incomprehensible values are handled. Nor can the teacher materially hasten the time when the idea of value can be gained. It depends absolutely upon experience, and therefore requires time and can come only with age. The value of a dollar is known only when it has been earned. The time is certainly not perceptibly hastened by the early introduction of toy money and imaginary bargain counters. These devices have about as much to do with the notion of developing value in the mind of the pupil as the skin of a stuffed monkey has with developing an idea of the South American fauna. Most of such devices are nothing but the stuffed monkeys of mathematics. This fatal mistake of filling arithmetics with purely abstract problems, and also the so-called concrete problems which deal with incomprehensible material, has reduced the learning of arithmetic on the part of the pupil to the memorizing of a string of disconnected exercises which cannot be remembered or applied because they are not associated in the mind with any intrinsic thought, and it has driven the instructor to employ a vast multitude of catchpenny devices for the purpose of teaching a few very simple processes. It is one of the greatest monstrosities of modern education that the application of processes so few in number, and so simple as those in arithmetic, should be so little known and so poorly understood by both pupil and teachers.

Just how much number work must go with science work is the question that must now be considered. As yet it may be too much to say that all mathematics must be *science* mathematics; for every subject which demands accuracy in thought must of necessity furnish mathematical material of some kind;

but it is not too much to affirm that all science must be *mathematical* science. Actual advance in science work is not possible without the introduction of the mathematical element of accuracy in quantitative work. The children may observe a great deal, but they will not progress unless they, in the appropriate way, accurately measure as they go. As science work is now done in most cases, the pupils are getting a great deal of color work and written and spoken language ; but they are not getting exact and definite concepts because the mathematical element is almost wholly wanting. They are in the precise condition of one who learns the color and kind of material in a box, but learns nothing of its exact form, size, or weight. Their written and spoken language, and to some extent their drawings, show this in the great paucity of mathematical terms and in the lack of exact proportion of parts. In speaking or writing they say "few," "many," "some," "about," "nearly," "somewhat," "I think," "I believe," "I should say," etc., etc., all of which expressions and terms indicate a lack of clearness and definiteness of thought. They are seldom confident enough in their work to make a direct and unqualified assertion respecting any observation. This tends to make the observation more lax, and forms in the pupils ruinous habits of carelessness and inexactness.

It is one thing to point out an inherent weakness in any system of instruction, but it is another to suggest a remedy, and usually a much more difficult thing still to apply it. The ability to teach the arithmetic, in connection with any science work, which is necessary to render the outline and details of the experiment or observation clear, presupposes the clearest possible insight on the part of the teacher into the central thought, point, and scope of that experiment or observation. Failing in this depth of insight, the teacher will not feel the demand for number (which is only another way of saying that he sees nothing to number), and all problems will be given at random, and consequently they will not help to clarify and develop that central thought. In order to understand more clearly the relation of number to science work, it is necessary at this point to inquire into the nature of the chief operations in arithmetic.

The mathematics in connection with science work naturally divides itself into two parts. These are, first, what pertains to the collection of accurate data, and second, that which pertains to comparisons necessary in making generalizations. By the collection of accurate data, it is meant that the pupil shall in every case find by the appropriate means the exact limitation of his observations. This may be illustrated as follows: if he is studying the constituents of soils, he must not be permitted to say, "It is largely sand or gravel," or that the organic matter is small in amount, but he must be required to employ such means as will show him the sand, gravel, etc., in definite and exact amounts. Again, in studying the color of butterflies, for instance, in its relation to the environment, the pupil must not be allowed to put his results in the usual indefinite way, "I think in most cases the butterfly seeks protective surroundings," but he must be required to say in how many cases he has seen the butterfly actually do so. In studying the growth of plants he must not be allowed to say, "The tree averages about so much," but he must by actually measuring find out, as closely as may be, what the average growth is. In short, the first question which both teacher and pupil must have uppermost in mind, when contemplating any experiment or observation, is, "What is the appropriate means of measuring which will enable me to precisely determine the limit of my observations in this case."

After the data have been collected by means appropriate to the nature of the subject and the capacity of the child, the work of comparison begins. This is the fruitful, the really educative part of the work. The collection of data gives skill and requires nicety in manipulation, it is disciplinary, but it is not educative in a broad sense. It does not give the broad concepts that come only from comparing results so collected.

In making comparisons there may be recognized four modes, each distinct in character from the other; nevertheless they are modes of comparison, because they each so present data to the mind that the relations between them may be seen. These four modes in their cumulative complexity also bear a natural relation to the development of the child's mind. The first mode of comparison which a child uses is where all the quantities are considered as wholes. Under this mode the genesis of the four fundamental operations as means of comparison may be illustrated by the following examples: the child has, for instance, two sticks of different lengths; his very first comparison respecting length is expressed by saying either, "One is longer than the other," or "One is shorter than the other." In the first case he is looking at the long stick and thinks, "It is like the short stick with more to it." This is his initial thought in addition. In the second case he is looking at the short stick and thinks, "It is like the long stick with part of it taken away." This is his initial thought in subtraction. Very soon he is able to say exactly *how much* must be added to the one or taken from the other, and at that stage the definite processes of addition and subtraction begin.

A little later, as he looks at the short stick, he thinks, for instance, "If I could put two or more of my short sticks together," they would then be like my long stick. This is his initial step in multiplication. Or, looking at the long stick, he may think, "If I could cut it in two or more, I should then have two or more pieces like the short stick." This is the beginning of division. In these first steps in comparison the child naturally employs whole numbers in the four fundamental operations given in the books as addition, subtraction, multiplication, and division.

The second mode of comparison is by considering one of the quantities directly as a part of the other. The child now says, "The short stick is one-half the length of the other." This is his first step in partition, and at this stage he is ready to begin the study and use of fractions.

In the third mode of comparison the child may use either quantity as the standard, but he must be able to conceive of it as being represented by unity. Thus in two trees, if one is twenty feet high and another eighty feet, he must not only be able to see that one is sixty feet higher than the other; that it is four times the height of the other; that the shorter is one-fourth the height of the taller, but also that, if the shorter is represented by one, the longer is represented by four; also that if the longer is one, the shorter is one-fourth. This mode, including all of what is given under ratio and proportion, is of more difficult application than either of the others and should be introduced later in the work of the pupil, but not so late as might be inferred from the place usually assigned to it in books on arithmetic.

In the fourth mode of comparison the pupil must be able to grasp what has been described in the first, second, and third modes, and must, besides, be able to conceive of one of the quantities being represented by one hundred. Under this mode are included all the operations that belong to percentage in the text-books. If in the examination of soils he finds ten grams of gravel in fifty grams of soil, the pupil will say that if the soil is represented by one hundred the gravel will be represented by twenty; that is, twenty per cent. of the soil is gravel.

From this discussion it will be seen that as early as the pupil is able to make a definite observation, he has at his command, and does in fact naturally employ, a mode of comparison corresponding to his stage of development; also that each mode of comparison rests upon a corresponding mathematical operation; and further, these operations tend to clear up and define his ideas of the subject he studies. It will also be observed, still further, that with the exception of such exercises as are intended to be used for the purpose of fixing the units of measurement, the whole of arithmetic is included under these four great modes of comparison. It therefore follows that any subject or subjects which can furnish a sufficient amount of legitimate material to provide problems enough in these four modes of comparison, will meet even the present demand for arithmetic in the schools. The amount of material actually demanding such number work, which may be gathered from the beginning in the domain of natural science, is practically only determined by the intelligence of the teacher in directing his pupil, and by the limitations imposed by adverse conditions under which most teachers labor.

A series of problems is here appended to illustrate the character of the questions and the form under each mode of comparison. The teacher will see the necessity for others. The test which the teacher must apply to such problems is, first, are they good science? that is, will their solution tend to clear up the concept sought? and second, are they good arithmetic? that is, do they involve any absurdity in calculation. If they fulfill the legitimate demand of science, and do not outrage the canons of number, they should be admitted as properly educative factors.

I. GERMINATION: *absorption of water by seeds*

1. How many grams of water will ten grams of seeds absorb? 2. Ten grams of seeds absorb what part of their weight or bulk of water? 3. What is the ratio of the weight (or bulk) of dry seeds to the weight (or bulk) of water they will absorb? 4. Dry seeds will absorb what per cent. of their weight of water? 5. Precisely similar problems in comparing results gained from study of different kinds of seeds.

II. STUDY OF SOIL: *absorption of water*

1. Twenty grams of soil will absorb how many grams of water? 2. Twenty grams of soil will absorb what part of its weight of water? 3. What is the ratio of twenty grams of dry soil to the water it will absorb? 4. Dry soil will absorb what per cent. of its weight of water? 5. Precisely the same questions relating to subsoil, sand, etc., and comparisons between them.

III. MECHANICAL CONSTITUENTS OF SOIL

1. Fifty grams of soil contain how much sand? 2. What part of fifty grams of soil is sand? 3. What is the ratio of sand in fifty grams of soil? 4. In fifty grams of soil what per cent. is sand? 5. Precisely similar questions in regard to subsoil, loam, etc., and comparisons of results.

IV. RELATION OF ANIMALS AND PLANTS AS SHOWN BY A STUDY OF LEAVES

1. In fifty leaves, how many have in some way been used by insects? 2. In fifty leaves, what part has been injured by insects? 3. In fifty leaves what is the ratio of injured leaves to those uninjured? 4. In fifty leaves, what per cent. has been injured by insects? 5. Precisely similar questions growing out of a study and comparison of different trees.

V. METEOROLOGY FOR A MONTH: *study of rainy days*

1. How many days have been rainy? 2. What part of the entire month has been rainy? 3. What is the ratio of dry days to wet ones during the month? 4. The number of wet days during the month is what per cent. of the entire number? 5. Precisely similar problems arising from a study of different months and the meteorological conditions of temperature, air pressure, etc.

VI. ANIMAL LIFE: *protective coloration*

1. In twenty-five instances, how many times did the same butterfly alight in situations where its color was protective? 2. What part of the whole number of times in twenty-five instances did the same butterfly seek protective situations? 3. In twenty-five instances, the number of times when the same butterfly sought protective situations bears what ratio to the number of times when the situation was non-protective? 4. In what per cent. of twenty-five cases did the same butterfly seek protective situations? 5. Precisely similar questions relating to other insects and comparisons growing therefrom.

These six sets of problems will be enough to suggest the abundance of mathematical material in any phase of elementary science work and give some idea of how it is to be used.

Before leaving the subject a word should be said about the method of teaching upon this new basis. New wine must not be put into old bottles. The same principle precisely holds in this case that is already recognized to some extent and obeyed in teaching other subjects. Formerly, spelling, reading, etc., were taught as ends; now *thought* is the end and they are incidental. The fatal mistake that has been made is in teaching the *thought* and making the spelling, etc., accidental. There is a mighty difference between the incidental teaching of form subjects and the accidental teaching of them. So now, in this number work, the teacher must clearly work for the intrinsic thought and make the teaching of the arithmetical operations incidental, but by no means accidental. These operations must be just as thoroughly taught as ever before; they will be more thoroughly taught in far less time, too, when teachers really grasp the subject matter in hand. The reason for this faith has its source in the pedagogical fact that in the new order of things the intrinsic thought of the subject will demand the operations; and the pupil, if properly directed by the teacher, will feel this actual demand, and his mind will work for them at its highest possible tension. We lose enormously by working at a subject with our pupils when their minds have a low tension—a low potential, to borrow a term from physics. We all know from experience and observation how quickly and strongly even seemingly dull minds grasp facts, principles, and operations when they are rendered really alert by an actual desire to get the thought. This, then, is the first duty of the teacher in the present case: stimulate the mind to its greatest activity with the subject matter, and then definitely direct this activity by means of the various arithmetical operations. Questions prepared in connection with the science work, taught from any other motive, will render them as dead, and the pupils as listless as the most arid arithmetic ever used.

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V

TESTS ON SCHOOL CHILDREN

We have come to recognize clearly the necessity of being sure that children possess no defects that incapacitate them for school work or for which allowance must be made in instruction. In a rough sort of way we know a trifle concerning the child, but there is no question that in every school there is some child with a defect or abnormality that has been overlooked by both parents and teachers, but which greatly interferes with the proper pursuit of his studies or even makes school work a torture. Whenever such a defect exists it ought to be known and provided for; and to discover such defects we ought to have some system of testing the children in various ways. More than once a child has been considered stupid when really he has had great difficulty in hearing what has been said to him. More often still does a pupil find trouble with the singing, when in fact he cannot tell two notes apart within an interval of a couple of tones. Many a teacher is exasperated at the distorted drawings produced, when there was an inherent defect in the power to estimate distances by the eye, which could only be cured by special practice with reference to it.

Many of the troubles of children could be discovered by a regular periodic system of testing, and, having been discovered in time, very many of them could be provided for or could even be cured by a proper training. Such a system of testing ought to include bodily measurements and a thorough examination of the condition of the eye, the ear, the chest, etc. But in addition to the bodily measurements there ought also to be tests and measurements of mental power. The question of bodily measurements is reasonably well understood; what I wish to call attention to, particularly, is a set of the most simple tests on the mind of the child. I rather think that we generally expect from bodily measurements results and deductions which they do not pretend to furnish. Bodily measurements give us data in regard to the condition and growth of the body and should be judged on that basis only.

The prime object of measuring and testing children periodically, say at the beginning of each school year, is to determine whether their minds are in the proper condition for school work, that there are no underlying defects of sensation or intelligence that must be looked out for in the course of instruction, and also to determine that the child has developed at the proper rate. Of the immense scientific value of the records of such tests on large numbers of persons I need not speak.

Of course, these tests that I refer to briefly here are to be modified and adapted to the different degrees of intelligence, as shown at the various years of development and in the various grades in school. I have avoided anything like expensive apparatus; in fact, there is not one of the tests which any teacher with a little ingenuity cannot make at a trifling expense. Possibly some day there may be invented cheap forms of the various pieces of psychological apparatus, or possibly some school board, becoming convinced by practical trial of the value of these simple tests, will be willing to spend a few hundred dollars in this way.

I TESTS ON THE MEMORY

The first test proposed is a test of the condition of the auditory or ear memory. This can be made by reading off a number of meaningless syllables to the child and asking him to repeat as many of them as he can remember. For example, I read off to a class the following ten syllables, and then ask each pupil to repeat to himself as many of them as he can remember:

ba re ma li go pu ko li so tu.

Perhaps one child will remember five; in that case his auditory memory is expressed as a fraction of the task set before him. If he remembered five syllables out of ten, he has attained $\frac{5}{10}$ of perfection. Someone else will have remembered seven syllables, someone eight, or three, etc.; these persons have succeeded to the extent of $\frac{7}{10}$, $\frac{8}{10}$, $\frac{3}{10}$, etc.

Or the result may be expressed in another form. Suppose that it has been found, from long experience, that the children in a certain class or at a certain age can remember on an average five out of the ten syllables; then that number may be taken as the denominator, and each separate child's memory can be expressed as a fraction of the average. Suppose a child remembers three out of the ten; then you would say that he has an auditory memory equal to $\frac{3}{5}$ of the normal. This would be a relative measurement, whereas the one first given may be called an absolute one.

Of course, the difficulty of these syllable tests is to be modified for each grade as may be necessary. In the highest grade probably ten syllables, once read, would be about right. In middle grades probably ten syllables twice read, or even three times read, would be the proper test. In still lower grades it would be best to use only five syllables, and in the lowest ones they should be read over several times.

The next test to be made should be on the visual or eye memory. For this purpose I use ten meaningless syllables arranged in some convenient form on a card. I hold up such a card to a pupil for five seconds, just long enough for him to read the syllables through. It will be necessary to expose the card for a definite time, in order that the test may be repeated at different times under the same conditions. Perhaps six of the syllables will be remembered. Then the memory showed an ability of $\frac{6}{10}$ of the maximum. The results are treated in the same way as before, expressing them in absolute numbers or as fractions of the average. Also, as before, the difficulty of the test may be modified for the different grades by changing the time of exposure and the number of syllables.

As a third test I take the combined visual, auditory, and muscular memory. I show a card as before, but the syllables are to be read over aloud. In this way the child not only sees and hears them, but he also makes the muscles of the larynx, tongue, etc., go through a set of motions which are more or less likely to be remembered.

A fourth test combines the eye memory, the ear memory, and the muscular memory of the hand. Let a card with a number of syllables be shown and the child required to write them down on a slate. This teaches the syllables to the hand also. Then have the slate cleaned and test how many of the syllables the child can remember.

Finally there is another test of the memory aided by the intelligence, which is of great importance and which ought to be combined with the previous tests. Suppose one reads off to the child ten sentences, each of which states a simple fact. He should then be asked to repeat as many of the facts as he can without regard to the words used. That is to say, his memory for facts, not words only, is tested. Such sentences as these should be used: *Hats are convenient; Air is a necessity; The horse is useful;* etc. Combinations of words that are likely to strike the attention or could be gotten right by chance are to be avoided; *e. g.*, such a statement as *The horse is green* could not have been forgotten; or if *Ink is black* is used, there would be a chance of the child's getting it right even if only the word *ink* had been remembered.

2 EXTENT OF CONSCIOUSNESS

For this, I propose only one test, namely, that invented by Cattel at Leipzig and used in his psychological investigations. Instead of using apparatus, I will put the test in simple form that can be copied by anyone. Ask the child to look at the red dot on a card held before him. Behind it is another card with a number of letters on it. Jerk the first card aside for an instant, so that he catches only a glimpse of the letters. Then he is to tell how many letters he has seen. "About five" is the usual answer. He actually saw all the letters as far as the physical act of seeing was concerned; but he was not able to grasp so many facts at once in consciousness. For lower grades the test may be modified by jerking the first card away a number of times.

3 EYE SPACE

This has reference to space as judged by the eye. As a first test it is well to lay before the child a card or a piece of paper with a vertical line on it and put a sharp pencil in his hand. He is to mark off the middle point of that line. That mark will never be in the correct place; it is always a few millimeters one side or the other of the middle. It is generally above the middle. If the line is ten centimeters long and an error of two millimeters is made in halving it, the error is four per cent.

The same test is to be made with a horizontal line. Our estimation of visual space depends on the muscles of the eye, and this measurement gives an indication of their proper condition. I do not need to call attention to the practical applications of this test to drawing.

4 MOTOR ABILITIES

Many measurements might be made of the time and extent of the motions of the child, but these would require more or less expensive apparatus. I will propose only such as can be made by everyone, namely, tests on the accuracy of the movement of the arm and hand.

The first is on accuracy in touching a given point. I place a card on which there are several small dots before the child, and ask him to touch one of the dots with the pencil, the arm being held free above the desk. His hand trembles and shakes more or less, and he is sure to make some sort of an error. After the dot has been made, take a ruler or a pair of dividers and measure off the distance between the original dot and that made by the child. In every case we can see by the eye that we make such an error; if we could only hold the pencil steady enough we could hit the dot every time. So the test is one of the steadiness of the arm and has nothing to do with judgment by the eye.

Another very important measurement is the following: lay before the child a card or a sheet of paper on which there are two dots, and call upon him to connect the two by a straight line. The card is to be so placed that such a line will be horizontal. To measure the error of the line which he will draw, lay a straight ruler across the dots, and with a pair of dividers find the amount of his greatest deviation from the true straight line. The same test is to be made with the lines vertical.

5 EYE TESTS

The tests on the eye are probably the most familiar. The first test is that for sharpness of vision, that is, to measure the least visual angle which an object must cover in order to be seen. This can be tested on even a very young child by means of a card with the letter E on it in various positions, finding out at what maximum distance he can tell you in which directions the various E's point. Then, according to Snellen's formula,

$$V = \frac{d}{D}$$

in which V is the sharpness of vision, D the distance at which the letters can usually be read, and d the distance at which the person tested can read them.

This test is used in many different forms. Snellen's book gives a selection of test paragraphs in various languages and of different sizes. In Roberts's *Manual of Color Blindness*, there are four such sets with the normal distance in feet and inches printed over each; instructions for use accompany them and the deductions to be drawn from the diagnosis are stated. There are several tests mounted on pasteboard for hanging on the wall. One is with English letters, the normal distances being given in feet. Another of the same kind is in German, with the distances stated in meters. A test by Dr. Bennett is well suited for school use, the normal distance being five meters or a little over sixteen feet. All these cards, as well as the colored worsteds to be mentioned and the various apparatus for the other eye tests, can be obtained in the standard forms from Meyrowitz of New York.

Another test to be made is that for astigmatism. There is a card of letters composed of parallel lines which has the angle of astigmatism over each letter. When the lines of any letter, instead of being separate, appear to blur over the vacant spaces, astigmatism in that direction is indicated and must be corrected by suitable lenses. For astigmatism of the cornea, there is provided a keratoscope, which makes possible the instant detection of that defect by observing the distortion of the circles as reflected from the surface of the eye.

The need of the test for color-blindness is universally admitted, although there is really no reason why the other tests are not just as important. The first, and in my opinion the best, set of colors for the test is that resembling the original Holmgren test. The possession of just the proper colors is a very important point. The standard colors as selected by Dr. Joy Jeffries can be obtained from Ceiley & Wright of Boston.

I use a pile of the colored worsteds. To perform the test rapidly I pick out a number of skeins of a certain color, say green, and then throw them back and mix them with the pile. The person tested is now to pick those skeins out again. If the vision is normal, this will be done without difficulty; but if a red skein is chosen, then there is red-blindness present. I then take a skein of a second color, say purple, and have those like it chosen. If instead of the purple colors, alone, the blue and violet colors are picked out by the subject, then there is red-blindness present; but if only green and blue are chosen, there is green blindness. Further particulars are to be found in Jeffries's manual on this subject.

6 HEARING

Tests on this point are sadly neglected. Teachers have continual trouble with the singing of the children, yet it can be affirmed that in a large percentage of the cases the trouble lies in the hearing. Nevertheless, outside of Germany, I believe that systematic tests have never been carried on. Nothing extensive or accurate need be attempted; it is enough to make sure that there are no radical defects in the children's hearing.

In the first place, we do not hear tones above a certain pitch, and this upper limit of pitch is different for each individual. By the use of a little whistle one can tell exactly where a person's hearing stops. In the case of children, however, all that is needed is to make sure that the hearing for tones does not stop within the limits of the piano. As a first test, every child ought to be tried as to whether he can hear up as far as the piano goes.

Likewise we ought to see that he can hear down as far as the bass notes on the piano. Moreover, it would be well to be sure that he is not deaf for certain particular tones. This can be done by running over the scale on the whole range of the piano.

The next test to be made is that for sensitiveness to variation of pitch. We want to know how small a difference in the pitch of a tone the child can distinguish. In the psychological laboratory this can be measured accurately, and some persons have been found who can detect a difference of $\frac{1}{100}$ of a vibration. In school it will suffice if we make sure that the child can distinguish between any two adjacent half-tones. Many children cannot distinguish between a tone and its sharp. A few of these tests, made recently, gave especially interesting results. One little girl, six years of age, when asked to distinguish between two adjacent tones, answered wrongly as many times as she answered correctly. She answered wrongly six times out of ten with half-tones. When asked which of two notes a tone apart was the higher, she answered correctly seven times out of ten, but with half-tones she seven times thought that the lower tone was the higher. Another girl, of exactly the same age and in the same grade, answered every question correctly.

The next test on hearing is that made by physicians for deafness. A simple, though not very accurate, way to carry it out is to take a watch and, beginning at a distance from the ear where the watch cannot be heard, bring it closer till it is just heard. Then measure off the distance from the ear, and treat the results as in previous cases. You will first have to determine by trial what is the average distance at which the watch can be heard. If D represents this distance and *d* that at which a particular person hears it, then his acuteness of hearing can be represented by

$$H = \frac{d}{D}$$

In connection with hearing I would strongly urge that the child's ability to sing a given note be tested. Strike a key on the piano and ask him to sing the same tone. If you have a musical ear at all, you can tell whether he hits anywhere near it or sings a tone or two away from it.

7 CUTANEOUS SENSIBILITY

Lombroso has found that the sensitiveness of the criminal class is very much below that of the average man. This is shown perhaps more clearly than elsewhere in the sensitiveness of the skin. We can have no better test of this sensitivenses than the use of something that causes a slight degree of pain. Send a current from a battery through the skin, beginning with a very weak current and increasing it up to the point where the person tested just begins to feel pain. Read off the amount of the current. The differences between the various constitutions of the children would come out in a very marked way.

It is worth while considering whether the great cruelty exhibited by some schoolboys may not be due to the fact that their sensitiveness for pain is very small, and so they cannot have any idea of how animals or other persons suffer when tormented.

There is one test on the skin which all teachers can make, a test of the faintest perceptible pressure. For this there is used a set of little cork weights, proceeding from one centigram, each weight being twice as heavy as the last one. I can just feel the smallest one when it is placed on the palm of the hand. Now, if a child cannot perceive that weight, it will be necessary to try the larger weights in succession. The size of the weight that can just be perceived will indicate his sensitiveness to pressure.

8 SUGGESTIBILITY

The last test I want to propose is one which we have just invented at Yale. We all know how easily children in general take up a suggestion and what curious exceptions to the rule there are. One little girl will believe everything you tell her without question, and will imagine she sees or feels anything that the teacher suggests to her; another child will persistently doubt the teacher's word, will be a skeptic on all questions, and if he grows up to be a philosopher will probably doubt the evidence of his own senses. How convenient it is to have a means of measuring the suggestibility just as we measure the reaction times and the memory! Here is the way in which we propose to do it: through a thin wire I send an electric current just strong enough to make the wire slightly warm. I ask someone to put his finger on the wire before I send the current through, and taking out my watch I note the second at which I send it through. He is to tell me how soon he feels the slightest warmth and I note how many seconds it takes him. Then I perform the test twice more, and note down the time as before. But I hold the connecting cords in my hand, and the current can pass only when the two points touch. On the last two times I did not let the points touch. and so the wire did not in reality get hot at all, and the sensation which the person had was the result of my suggestion that the wire was going to get hot. The time it took for that suggestion to work will give some idea of the person's suggestibility.

The above hints or suggestions are given because they are simple and practical. There are many other tests, just as valuable, that may be made with a little care and at a small expense.

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VI

EDUCATION IN FOREIGN PERIODICALS

Ernest Renan

GABRIEL MONOD IN THE "CONTEMPORARY REVIEW"

"The moment is not yet come for appraising the work of Ernest Renan, and his contribution to human thought. But it is nevertheless impossible, after saying so much of his life, not to attempt in some way to indicate the causes of his immense renown, the place he holds in our own century, and the way in which he merited the exceptional honors which France has paid him at his funeral.

"One merit he had which no one dreams of disputing. He was beyond comparison the greatest writer of his time; and he is one of the greatest French writers of all time. Brought up on the Bible, the Greek and Latin classics, and the standard authors of France, he had accustomed himself to a fashion of speech, at once simple and original, expressive without oddity, and supple without languor; a style which, out of the somewhat restricted vocabulary of the seventeenth and eighteenth centuries, could sufficiently furnish itself to render every subtlest shade of modern thought—a style ample and sweet beyond all parallel. You find in Renan bits of narrative, of landscape, of portraiture, which are models for all time; while his philosophic and religious pieces present in their most delicate gradations of atmospheric perspective thought and sentiment and dream. If now and then, in his later writings, the attempt to modernize has led him into small errors of taste, these false notes are few and far between, and, generally speaking, the propriety of expression equals the delicate poise of the style and the consummate skill of the construction. Renan will outlast all the other authors of our century, because he has equaled the most illustrious of them in force and picturesqueness while surpassing them in simplicity and artistic sensibility. Beside him, Chateaubriand seems a mere declaimer, Lamartine limp and redundant, Victor Hugo brutal and monotonous, and Michelet restless and unequal.

"But the real triumph of Renan's style is this: that he has never been a stylist; he has never treated literary form as an object in itself. He had a horror of rhetoric; and what he understood by perfection of form was the means of presenting the thought in all its force and individuality, in the fullness of its character, 'in its habit as it lived.' The simplicity of his style was just the reflection of his simplicity of nature; its force and its brilliancy were derived from the plentitude of his knowledge and the abundance of his imagination.

"In the region of the learned studies Renan has not been a creator. Neither in philology, nor in archæology, nor in exegesis, has he made any of those great discoveries, or founded any of those systems, which renew the face of science. But no other man can lay claim to an erudition at once so universal and so precise as his. Language, literature, theology, philosophy, archæology, and even natural history—no branch of human knowledge was alien to him. His profound acquaintance with the past, together with the magic gift which enabled him to clothe it with flesh and make it stand upon its feet, made him an incomparable historian. This is his highest glory. In a century which is before all things the century of history, in which arts and literatures, religions and philosophies, are chiefly interesting as successive manifestations of human evolution, Renan had the supreme historic gift. In this he is a true representative of his time. And it may be said that he has enlarged the domain of history by admitting into it the history of religions. Before him the history of religion was the private reserve of the theologians, whether rationalistic or orthodox. He first took it up in a purely secular spirit, and made it the property of the public. The Church was not wrong in thinking him her worst enemy. To give the history of religion a place in the general history of the human mind was to strike a blow at the ideas of revelation and the supernatural which no mere tenderness of sentiment could heal or soften. On the other hand, he stimulated curiosity with regard to religious questions; and if the orthodox accuse him of profaning holy things, we may at least accord him the merit of having vindicated the necessity of the science of religion to the understanding of human history, and awakened in many minds a new taste for religious subjects.

"If Renan was not a creator in the domain of learning, neither was he an innovator in the domain of philosophy. His theological studies, while they developed in him the qualities of the critic and the savant, tended to disgust him with metaphysical systems. He was too much a historian to see in these systems anything but the dreams of human ignorance amid an assemblage of things it could not understand, the successive mirages thrown up before the mind by the changing spectacle of the world. But if he was not a philosopher, he was a great thinker. He flung broadcast on every subject he touched—on art or politics, as on science or religion—the most original and the most pregnant ideas. Thus, as a thinker as well as an historian, Renan was the faithful interpreter of the time in which he lived. Our era has lost faith, and admits no source of certainty but science; but it has not been able to make up its mind, as the Positivists would have it, to turn the conversation and talk no more about what it does not understand. It cannot help throwing its sounding-line into the bottomless deep of the unknowable, producing into the infinite the lines of hypothesis suggested by the sciences, and lifting itself on the wings of dreams into the world of mystery. It feels that without the faith—or the hope—of invisible realities, life loses its nobleness; and it feels, for the old heroes and mystics of the religious life, an attraction and a tenderness made up of vain regrets and formless aspirations. Of this state of mind Renan was the supreme representative; and he himself contributed to create it. No one ever affirmed more blankly, more unflinchingly, the sovereign claims of science as the only source of positive certainty, and the necessity of finding in it a sufficient basis for life; no one ever more resolutely excluded the supernatural from history. But at the same time he piously gathered up the tears and sighs of humanity, panting for a super-terrene destiny; he restored to life in his own soul the souls of the founders of religions, the saints and mystics; he set before others, and before himself, all the hypothesis which science still permits to the religious soul. Curiously enough, it is three Bretons—three sons of that serious, inquiring, and yet mystical Celtic race—who have been in France the representatives of the whole philosophic and religious movement of the century—Chateaubriand representing the poetic and imaginative Catholic revival; Lamennais, first the reconstruction of dogma, and then the revolt of reason and the heart against a Church which closed itself against the ideas of liberty and democracy; and Renan, the positivism of science, combined with a sentiment of regret for the lost faith of humanity and a vague yearning after something to take its place.

"As to his skepticism and his so-called dilettantism, they were but the consequence of his sincerity. Afraid, above all things, of deceiving or being deceived, he had no fear of proposing contradictory hypotheses on subjects where he believed certainty to be impossible. People have wondered that the same man who wished to have the words *Veritatem dilexi* placed upon his tomb should so often have asked with Pilate, 'What is truth?' But these questions, not unmingled with irony, were themselves a homage to the truth. He perceived that for most men the love of the truth means intolerance, fanaticism, particular opinions received by tradition or born of the imagination, always destitute of proof and destructive of freedom of thought. To assert opinions which he could not prove seemed to him an insufferable impertinence, an infringement of intellectual liberty, a want of sincerity toward himself and others. And he bore himself this testimony: That he had never consciously uttered a lie. He regarded it as Stoicism, not skepticism, to go on in the practice of duty without knowing whether it had any objective reality; to live for the ideal without believing in a personal God or in any future life; and in this twilight of uncertainty where man lives, here and now, to create, by the fellowship of pure and noble minds, a celestial city where virtue is the more divine because it expects and asks no recompense.

"There are some who think themselves disciples of Renan because they can imitate the ripple and the sparkle of his style, his tone of irony, his attitude of doubt. They have not given themselves the trouble to imitate his virtues, his colossal labors, his consummate devotion to truth. They have not found out that his skepticism was a compound of gentleness, modesty, and sincerity. Those who read his *Future of Science*, written at the age of twenty-five, and who see the intimate connection it holds with the whole mass of his life's work, will add their testimony to his own: *Veritatem dilexit.*

"And now, if we are to ask what is the special characteristic by which Renan must take rank among the great writers and great thinkers of the world, we shall find that his supremacy resides in his peculiar gift of seeing nature and history in their definite variety. He has been compared to Voltaire, because Voltaire, like him, was the mouthpiece of a century; but Voltaire lacked his learning, his real originality of thought, his charm of expression. He has been compared to Goethe; but Goethe was above all things a creative artist; and, besides, Goethe's intellectual horizon, vast as it was, could not have the extension of Renan's. Never has there been a more comprehensive, a more universal mind. China, India, classic antiquity, the Middle Ages, modern times, with the infinite perspective of the future—all the religions, all the philosophies, all civilization—he knew and understood it all. He recreated the universe in his own brain; he thought it out again, so to speak; and that in a variety of versions.

"The spectacle that he thus inwardly conceived and contemplated it was given him to communicate to others by a sort of enchantment of persuasive speech. This power of creative contemplation was the main source of the continual gladness which illumined his life, and of the serenity with which he accepted the approach of death."

Democracy and our old universities

JOSEPH KING IN THE "CONTEMPORARY REVIEW"

"There are several tendencies in the present day which lead one to suppose that before long the position and privileges of our old universities will have to come once again under searching review, and will probably have to submit to a stringent revision. Three of these tendencies are sufficiently marked and important to be briefly denoted, though perhaps, as they are all the outcome of the modern democratic spirit, they need hardly be strongly differentiated. The first of them is the education movement, of which the board schools, university extension classes, technical education, the demand for secondary and intermediate education, and the public free libraries are the various signs; this tendency means that men recognize more and more the value of education, and intend to bring education more within the means and reach of all. Another tendency is that which may be called the revolt against privilege, and which claims that the public services shall be open to all, and not kept, as they have long been, and still are to a too large extent, as the preserves of the nobility and wealthy classes; many posts are practically only open to those who can pay for the education which they presuppose, or can afford to wait for the opportunity when it arises.

Democracy will not be content till the line of stepping-stones leads clear, without any gaps, from the board school to the Horse Guards, Trinity House, and the Privy Council. The third tendency, which makes in the same direction, is that which gives force and cogency to the word 'disestablishment.' It is not that the Church of England is not growing in energy and genuine philanthropy every year; it is not that Dissenters envy the rich endowments and the high political and social places belonging to the richest Church in Christendom; it is not even that the comparatively few disabilities under which nonconformists still labor excite great popular sympathy. But the feeling of the democracy is, and must increasingly continue to be, that the Church of England has an exclusive use of what is national property, is a great cause of dissension in religion by its refusal to co-operate with other religious bodies, always sides with the party that is thwarting democracy, and is in a word incompatible with democratic progress.

" . . . It must never be forgotten, in discussing the past and present of Oxford or Cambridge, that the university and most of its colleges were originally ecclesiastical institutions, dating from the time when there was complete communion and accord between the Church of England and the Papacy. The colleges were originally, like the old hospitals, eleemosynary establishments, and like the monasteries, under a common rule of life, and intended primarily for religious purposes. From the original statutes of the colleges, moreover, it is abundantly clear that they were in many cases founded *ad studendum*—*i. e.*, with the idea that the inmates should devote themselves to study, not to teaching. Their founders desired their inmates to acquire more learning themselves, but did not require them to impart more learning to others. After the Reformation, the compromise between Catholicism and Protestantism, which is the basis of the Book of Common Prayer and the Church of England, was fully reflected in the university and its colleges. The old statutes were retained and professedly respected, but practices which those statutes enjoined were disregarded. The universities remained, indeed, the nursery of the clergy and the headquarters of ecclesiastical learning, but as the Anglican Church now professes to be both Catholic and Protestant, and is really neither, but only Anglican, so the universities then professed to be national and religious, but were neither, and only academic.

" . . . Let us look at the present position of the University of Oxford. This can be done by considering the audited and published accounts of the university and the colleges. By this course we can review the way in which, and the cost at which, the university does its work.

"The gross income of the University (apart from the colleges) is about £65,000 per annum; the expenditure of this income includes the following sums: £9868 on professors, £2389 on readers, £4775 on examiners, assessors, and invigilators, £1165 on the university police, £5449 on interest and sinking fund on loans, £1130 on printing, £18,947 on institutions and public buildings. These items cover a large part, though not the whole, of the internal expenditure of the university. A further examination of them, in no great detail, will show how the university is worked.

"Nearly £10,000 for about fifty professors does not seem extravagant, averaging only £200 each. But it must not be forgotten first, that some professors do not even reside in Oxford, many more do little teaching or lecturing, while most are fellows of some college, or have some other position in the university, which means an increase, small or large, in their emoluments—*e. g.*, out of the chapter fund of Christ Church (£15,000 per annum) five theological professors receive very large stipends, which do not appear at all in the university accounts.

"The £2389 which is paid for the services of about fourteen readers is an amount which cannot be grudged. Some of the readers are really doing professors' work, and some of them are men whose scholarship, research, and ability have given them the widest reputation. The late Dr. Hatch, for instance, never held a professorship of any kind in the university, but only a readership; yet I found, when visiting the universities of Germany some years ago, that he was the only Oxford theologian who had at that time a European reputation.

"Concerning the £475 to examiners and others it may be noted that the examination fees charged amount in the same year to £5621, so that the university makes a substantial profit on its examinations. As to the £1165 for the university police, those acquainted with the university will wonder how so large an amount is spent presumably on the 'bull dogs' who attend the proctors in their nocturnal perambulations, while those unfamiliar with university life will wonder why the university needs police at all. The amount paid as interest and sinking fund loans—viz., £5449—is not at all to be complained of, considering the magnificent buildings which Oxford has seen erected in recent years as new examination schools and as laboratories and museum. The sum of £1130 for printing will appear rather extravagant, even when account is taken of the numerous notices, list of examinations, etc., which are posted up in every college, and most of which no one reads.

"The enormous item of £18,947 for institutions and public buildings includes some of the best work of the university, for under this heading appear the museum, the scientific departments and laboratories, the university galleries, the parks, the botanic garden, and many other buildings—in fact, all the great institutions and departments which make Oxford probably the most magnificently appointed university which the world has ever seen. But though no one can grudge the institutions of the university being well maintained, yet there can appear little doubt, even to anyone who looks through the published accounts, and none at all to anyone who knows these institutions personally, that an enormous amount is spent in maintenance, and very little indeed in making the collections more perfect, or the institutions more effectively and widely useful. This might be illustrated by reference to nearly every institution in the list; I shall, however, only refer to one, but that shall be the greatest and most important of all—viz., the Bodleian Library.

"The Bodleian Library is in many ways unique, and its peculiar attractions are known to all scholars. The expenditure upon it for 1890 was nearly £8000. Of this sum not quite £2000, about one-quarter only, went in purchases of books and manuscripts. This sum is perfectly inadequate to keep the great library up to the standard which it should maintain; it may be urged that, besides the Bodleian Library, each college has its library; nevertheless, considering the very small amount expended on those college libraries, the very small use of which most of them are, and the way in which the various colleges have neglected the arrangement made some years back, by which they undertook to develop their several libraries in certain particular or specialist directions, the Bodleian Library ought to be maintained by far better and larger purchases than at present. It received, of course, about ten thousand volumes, all the published books of Great

Britain, every year, without payment, under the Copyright Acts; but to the British Museum Library are added annually about thirty-five thousand volumes, in addition to the ten thousand which it received under the Copyright Acts, and, taking this number as some approximation to the number of new foreign books, from which an academical library has to choose, it may be safely inferred that the Bodleian Library does not pretend to keep itself supplied with the chief works of academic interest published on the Continent or elsewhere. But indeed no such inference is necessary; for have not the best authorities and scholars of the university complained quite openly of the neglect and niggardliness pursued in reference to the Bodleian Library? The last event in the struggle against this reactionary and obscurantist policy took place a very few months ago, when Professor Max Müller, the most learned and widely famous man now in Oxford, was defeated, when he was a candidate for the post of curator of the Bodleian Library, by a clergyman who owed his position in his college and in the university to a personal privilege, and who was pushed forward as a champion of the reactionary and clerical obscurantism which still reigns so powerfully in Oxford.

"The impression that the great wealth of Oxford produces far less in actual results than ought to be expected is confirmed when one passes from an examination of the university finances to those of the colleges.

" . . . Can this administration of the university and its collges, pleasant though it be in so many respects, be expected to remain unchanged in the face of the rising democratic spirit of the age?

"It will be urged by the defenders of the *status quo*, who plead so pathetically—and illogically—for allowing our dear old universities to remain what their pious founders intended them to be, that much of this extravagant expenditure on other than educational purposes is due to a laudable desire to follow old tradition and usage, and to realize the idea that these colleges are the training-homes of England's gentry and the Alma Mater of England's bishops and clergy; as such the colleges must be kept up as the homes of gentlemen, not with the severe economy of an industrial school. The answer to this is short: so long as this view prevails to such an extent as it prevails to-day in the common rooms of Oxford, just so long will the universities be out of touch with the democratic spirit of the age.

"There is another argument upon which the privileges of the colleges, and from the privileges the extravagant expenditure is of course inseparable, are defended; it is that so long as the statutes of the colleges are observed, and the objects for which the colleges were founded are respected, the state and the public have no right either to complain or to interfere. How utterly inapplicable such an argument is may be shown by taking the single instance of All Souls College; by their original statutes the fellows of this college were to be 'poor and indigent,' were to attend chapel five times on Sundays, and every Friday and Saturday throughout the year to chant the Burial Services and the Requiem for the Dead, etc.! That the Catholic and religious services enjoined are now optional may be passed over, but the intention of the founder that the college should be for the poor and indigent ought not to have been so lightly disregarded. How it is now observed may be judged from the fact that out of about 130 names on the books of All Souls about thirty, or nearly one-quarter, are names of titled persons! Can anyone plead for allowing this college to go unreformed on the ground of respect to the pious founder's intentions?

"Surely these facts are enough to found a basis for the contention that if democracy is to become the dominant spirit of our constitution, of our government, and our social life, the old universities will have to submit to sweeping changes, and will have to accept remodeling on democratic lines. What those lines ought exactly to be is another question; the plea put forward in this article is simply for democratizing the old universities. But in conclusion it may be permitted to point out, tentatively, several ways in which the change might be wrought; a few such suggestions will go a long way toward showing that to make the old universities more democratic will neither make their life less beautiful nor depose them from their position as the training-homes of our leading citizens.

"The two University Commissions of 1850 and 1877, and the legislation in connection with them, which have so altered the universities for good during the last forty years, might be followed either by a standing University Commission, or by the establishment of an Education Office, under a Minister of

Education; the University Commission or the Education Office should be as progressive in its policy as the Education Department is now in dealing with elementary education; and a similar, though less rigid, superintendence of the educational work of the universities and colleges should be exercised by the Education Office or the University Commission, like that now exercised by the Education Department over the work of our primary schools. Many ways in which this might be done without destroying the independence or individuality of the universities or colleges will suggest themselves—*e. g.*, the expenditure on purposes external to education might be limited, the prize fellowships might be coupled with a condition that certain work be done or certain results shown by the holders, the emoluments of heads of colleges, professors, and tutors might be reviewed with the object of seeing that those who really do the work get the pay, and not those who do not do it.

"The three great advances along the path of democracy which the old universities have taken during the last forty years are the admission of unattached or non-collegiate students, the abolition of religious tests, and the university extension movement. Each of these advances must be followed up further. Students must be admitted to, and allowed to study at, the universities whenever they show that they are serious in their desire for knowledge, and they must be allowed to graduate even though they have not acquired that rudimentary knowledge of Greek which is sufficient to pass them through 'Little-go' or 'Mods,' but quite insufficient to enable them to appreciate the masterpieces of Greek literature in the original. The principle of unsectarian teaching must be carried further by allowing the theological professorships to be held by men of any creed, and theological degrees to be obtained by any students who are worthy of them, even although they are not clergymen of the Anglican Church. The university extension movement must be recognized as an integral part of the university work, and the university must not only contribute men and funds to this purpose much more liberally than heretofore, but some method must be found to make the university extension student in a real measure a member of the university; or, at least, certificates must be given to university extension students, which will represent an actual value in seeking appointments in the Civil

Service, under local authorities, and in elementary schools. It need hardly be added that a true democracy will admit women equally with men to the advantages of university life and culture.

"There are many other directions in which an intelligent democracy may be expected to remodel our universities. It will insist on the universities affording as much the stepping-stones to a mercantile career, to the engineer's office, to the life of an agriculturist or a scientific man, as it does at present to the Church, the Bar, or the schoolmaster's profession. It must be the home, not only of classical learning and academic studies, but of practical and technical teaching. The French schools of agriculture and the German schools of forestry are institutions the like of which might be grafted on to our university life. Yet, again, the old universities must be brought more into line with the other universities. Any member of the Universities of Durham or Cambridge, may be incorporated into the University of Oxford, but the members of London or Victoria Universities, however brilliant their attainments or degrees, have no such privileges. An institution like Lampeter College, again, finds favors in the eyes of Oxford University which are not extended to Owens College or our great colonial universities.

"On such lines and with such changes the old universities of Oxford and Cambridge might pass from being—what they once were entirely, and are still far too much—the English gentleman's universities, and become the British citizen's universities. With wide tolerance for all creeds and all branches of learning, with generous encouragement for all noble sciences and arts, with a place for the poor student as well as the peer's son, with the aim of sending out men to work and to lead in all departments of our natioanl life, the old universities would add a new luster to their great traditions, would make their enormous wealth vastly more useful, and their undoubted influence for good more powerful and more pure."

VII

DISCUSSIONS

INTERNATIONAL CONGRESS OF PHILOSOPHY

As is well known, it is proposed to hold, in connection with the World's Fair at Chicago, a series of congresses for the discussion of questions in art, science, philosophy, and philanthropy. Arrangements are actively in progress looking to the successful management of these congresses, and the support and co-operation of the men and women eminent in their respective branches have been cheerfully promised.

Each congress is to have a local committee of arrangements. This committee will constitute the means of communication and action between the persons and organizations that will participate in a given congress. This committee of arrangements consists of a comparatively small number of persons who, with few exceptions, reside in or near Chicago. This committee has adjoined to it, and constituting its non-resident, but active branch, an advisory council, composed of persons of distinction in the work involved, and selected from many parts of the world.

The Local Committtee of the Philosophical Congress is now engaged in forming its advisory council, the members of which are to aid largely in the making of the programme and the selection of speakers. Among the members of the advisory council are Dr. William T. Harris, Professor George H. Howison, Professor Nicholas Murray Butler, Professor Joseph Le Conte, Mr. George P. Brown, Professor Josiah Royce, and others of equal eminence. Some of the above named have promised to prepare papers for the congress. Steps will also be taken at the congress toward the formation of a permanent National Philosophical Society.

The Congress of Philosophy will take place during the week commencing August 21, 1893. It will meet in the permanent Memorial Art Palace, erected on the Lake Front Park, through the co-operation of the Art institute of Chicago, the city of Chicago, and the directory of the World's Columbian exposition. In this building it will be possible to hold a

General Congress and various special congresses at the same time. It is proposed, in the contemplated meetings, to have the pressing problems of philosophy stated, to outline the results already obtained toward their solution, and to indicate the probable line of advance in the immediate future. The discourses to be delivered will be permanent additions, it is expected, to our philosophical literature, and their publication a real contribution to knowledge.

It is hoped that a large number of teachers will attend the Congress of Philosophy. While this invitation is extended to all who are interested in the subject, it is certain that many teachers will find it profitable to hear the questions of education presented in relation to those principles which are the motive forces underlying history, and the development of the race. The course which the individual mind must take in its development will be made clearer by seeing the course which all mind takes in the manifestation of its potentialities.

Those who are interested in the great subjects which have always enlisted the deepest thought of the time, are invited to this congress, and they are asked to spread this information concerning it as widely as they can. All who intend to be present at the Congress of Philosophy are requested to send their names and addresses at their earliest convenience to Dr. R. N. Foster, Chairman of the Committee of Arrangements of the Congress of Philosophy, World's Fair Congress Auxiliary, Chicago, Ill. Bulletins will be issued from time to time giving such information as may be necessary.

LOUIS J. BLOCK

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AN ANTITHETICAL COMPARISON OF FRENCH AND AMERICAN SCHOOLS

M. Rodriguez, whose report on the condition of education in Cuba was noticed in the EDUCATIONAL REVIEW,[1] has issued an English translation of his comparative estimate of French and American schools published in the Havanese journal *El Pais*. Without caring to comment on the conclusions which his observations seem to him to establish, I offer a few of the salient points that he presents, as food for reflection:

The French school lives more in the field of abstractions, makes more frequent appeals to the ideal, amplifies in the region of theories. In pedagogical doctrine, the French school seems to seek the center, the American school the circumference; the French school is satisfied to reach the end of the journey, the American school studies ways and means with deep interest. The Frenchman is remarkably idealistic, the American cultivates the sense of reality; the French schools are prone to overpraise method, the American schools put it into practice. The French are more individualistic, the American is frequently unmindful of individuals.

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[1] III : 287.

A review of the French school dilates over large spaces, but finds many waste tracts. In the American system, the nuclei are more numerous and in more immediate connection. The French schoolmaster feels himself strong on account of what he has learned from books. The American grounds his hope of success on his personal resources. The French educator prides himself on delivering a good lecture or deciding some doubtful point in classical scholarship. The American measures his scientific capital by the resources he has been able to draw from his own experience. The Frenchman trusts more confidently to the works of others; the American prefers to suggest. The French schoolmaster, assuming the task already ended, is content with having it repeated. The American, in every particular case, thinks that the educational task must be done anew.

In France, intelligence occupies the first rank; in America, will and character. Consequently, moral education is more vigorous and consistent in the latter country. The French schoolmaster cares little whence or how his pupil comes to school. The American teacher, if truly conscious of his task, relies on the co-operation of other public and social influences. In France the pupil is passive. The American child is taught slowly to unfold its own powers. In France, though bookmaking is flourishing, journalism languishes. In America, education owes to the periodical press the most efficient aid and impulse. In the American school the common language of daily life is freely used. In France, the teacher's language is technical and doctrinaire. The American text-book, grounded in experience, starts from the known and particular. The French text-book starts from the general and the absolute. The French text-book puts forward the rule as a previously settled conclusion. The American text-book prepares the way, leading the pupil to deduce the rule from premises duly propounded. The authority of precept is urged upon the intellect of French pupils. In the American schools, authority is subordinated to the pupil's mental activity. In France the text-book accepts no partnership. In America, the pupil has his own word to say and collaborates with the teacher.

The inspection of public schools in France is restrictive and inquisitorial. It specially aims to exact the observance of the statutes. American inspection cares more particularly for technical efficiency. The French inspector is not always able to do the work of his subordinates. In America, progressive movements and reforms are almost always suggested by inspectors. The French system attends chiefly to the higher grades of instruction; the American school to popular education. In France, the great central institutions are unfavorable to individual action. Americans estimate efficiency in direct proportion to number of pupils. The French system tends to individualism. The American system is essentially collective.

In France, private institutions attain success more easily. In America, the common school underlies all public services. In France, the school is valued as a means. In America, education has more the character of finality. The Frenchman thinks that the power of ideas is in itself sufficient for the regeneration of mankind. The French school, with greater pretension to intellectuality, is confident that its course of study is adequate to insure morality and to mold character. The American school fits the young man for action by means of action. The American teacher has swept away many an unsubstantial and chimerical nonentity. The French teacher lingers far behind in this labor of expurgation. American schools ask woman's help in their work. If that help has any value in the French schools, the value is in proportion to the scant emancipation of woman. For this reason, while in America school training is somewhat akin to family education, in France the mother is kept out of sight. And what is the teacher? In America, a social institution; in France a functionary in the public administration.

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VIII

REVIEWS

University of the State of New York: 104th annual report of the Regents. Albany: James B. Lyon, State Printer, 1892, 3 vols., pp. 2619.

This public document, transmitted to the legislature on January 30, 1890, was issued to the public only a few months ago, owing apparently to unavoidable delays in the printing office. It demands attention not only because of its place in a long series of valuable educational reports, but because it is much larger, far more complete, and infinitely more painstaking than its predecessors. The division into volumes is wise and convenient, and the classification the obvious one. Into the first volume are put the report of the secretary, Mr. Melvil Dewey, and the various Bulletins issued during the year preceding the date of the report. The most valuable of these are the "summary of legislation in 1890 pertaining to higher education, or to the University of the State of New York, or any of its departments or institutions," and the detailed account of the twenty-eighth university convocation. The former is especially suggestive because it includes a record of all bills which failed to become laws as well as those which met with both legislative and executive approval.

The second volume is devoted to the colleges of New York State, and contains elaborate educational and statistical statements. The third volume is given over to the academies, high schools, and academic departments under the supervision of the Regents.

Of the report as a whole, it may at once be said that in scope, arrangement, and minuteness of detail it is to be ranked with the best educational reports issued by European nations. It contains the answer to almost any conceivable question concerning any institution for higher education in New York. Its statistics, despite all that the secretary says on pp. 40–51, are probably as accurate as those usually found in other reports of the same size, where the intelligent and honest co-operation of so large a number of persons must be depended upon. It is very wise to publish these elaborate statistical tables every five or ten years only. It would a great gain if the Bureau of Education at Washington would pursue the same policy, which has also commended itself to the educational administrations of France and Prussia. By publishing elaborate tables of statistics at such an interval as this, there is ample time to make them accurate and complete, and also to base intelligent generalizations upon them.

The present report is entirely lacking in summaries, generalizations, or reflections upon the facts and figures presented. This is an obvious and serious defect and should be remedied hereafter. To know what figures mean, what lessons they teach, is even more important than to know figures themselves. It is true that the secretary hints, on p. r 51, at a reason for this omission, and the charts and comparative tables that are promised hereafter will be awaited with interest.

Some faults of arrangement in volume ii should be pointed out. New York State is fortunate in having within its borders a few universities, one or two of which maintain professional schools of as high a grade as any in the country. It also has a number of independent, or unattached, schools of law, medicine, and engineering. With the purpose, apparently, of putting under one head all of the places in the State where law, for example, may be studied, the Regents tear the university schools of law and medicine from their proper place and lump them with the independent, and usually irresponsible, schools of law. It is hardly necessary to point out that such an arrangement as this is not only artificial, but that it sacrifices the greater interest to the less. It is a grand thing to have a university—Columbia or Cornell, for instance—strong enough and brave enough to maintain high grade schools of law, and the university should be treated as a whole, reference to its professional faculties being made by a note attached to the enumeration of independent professional schools. In the present arrangement, for instance, Columbia College, which is a single institution, with one board of trustees and one financial administration, is treated as made up of a series of independent units. Its "schools" are really only administrative organizations and have no corporate existence at all. The arrangement becomes ridiculous when the Columbia College School of Political Science—an administrative organization—is dragged off and put next to the Chautauqua College of

Liberal Arts under the heading "Special." The dismemberment of Cornell University is carried out in the same way.

Matters like this are vital in elaborate official reports that go all over the world and are used by students of educational systems. In this respect, at least, the report before me is susceptible of great improvement.

N. M. B.

The Moral Instruction of Children.—By FELIX ADLER. New York: D. Appleton & Co., 1892, pp. xiii, 270. Price, $1.50.

This volume of Mr. Adler's is an interesting, elaborate, and unconvincing attempt to "dodge" an educational question of the first importance. It is to be regretted that Dr. Harris did not prepare for it a more extended preface, as he would certainly have thrown some light, that the book itself does not, on the religious element in education.

The definite instruction to teachers which Mr. Adler offers in chapters 6–17 is very clear and stimulating. He is a master of the art of putting things, and no reader can fail to grasp the meaning and application of his exposition, along well-known German lines, of how moral instruction may be imparted to pupils in the elementary schools.

The opening chapter, however, is the one that raises more questions than it answers. The possibility of unsectarian moral instruction which is neither irreligious nor anti-religious, will be cheerfully granted by all save extremists. The further facts that such unsectarian moral instruction is useful, that it can and should be given in the schools, and that Mr. Adler has suggested very excellent methods for so doing, may all be granted. But what about the religious element in human nature, in education? Millions of men, many of them American citizens and tax-payers, conscientiously believe that their religious faith and that of their children is of supreme importance. They feel that it includes and transcends morality. They believe that, as human nature itself cannot be dissected, so man's religious faith cannot be separated from his intellectual development. What shall the public schools do for this large class of citizens? Can they be ignored, despite all our fine sayings about liberty of conscience, individual freedom, equality before the law, and so on? Mr. Adler does not answer "yes," nor does he say "no"; he asks and answers another set of questions. He asserts with renewed emphasis that unsectarian moral instruction is possible and should be given in schools. But no amount of iteration on this point—which is incontestable—and no amount of skill in presenting it, will render unnecessary an answer to the entirely different question, how do you propose to deal with the religious element in education?

It may as well be admitted that this question of religion in public education is of the first importance. In England the voluntary, or sectarian, schools are contesting every inch of ground with the board, or public, schools. In France sectarian schools are growing more rapidly than those supported by public taxation. In Prussia the question nearly provoked a political crisis a year ago. In at least a third of the States in this country the issue between sectarianism and public schools from which all religious teaching is excluded, has been more or less formally joined. The reply that is constantly heard is, "No union of Church and state"; but this is empty verbiage. It settles nothing. In a country where every man is free to hold such convictions as he chooses, and is also a citizen, how is a separation of Church and state, or, to put it differently, of the same man's religious and non-religious opinions, possible? It is obviously impossible. The two are inextricably intertwined. This is the real difficulty in adjusting the public treatment of religious questions in a democracy. This is why Archbishop Ireland's suggestions on the subject, whether final or not, are timely and should be candidly considered. Mr. Adler's objections to certain attempted solutions of the difficulty (pp. 5–11) are well enough, perhaps, so far as they go, but they do not dispose of all possible solutions. Indeed they do not reach the heart of the problem at all, but fall back on the "separation of Church and state" formula.

Mr. Adler's book will be widely read by teachers, as it deserves to be; but it should not be mistaken for a contribution to the question of religion in public education, although the author evidently intends it as such.

N. M. B.

America; Its Geographical History, 1492-1892. Six lectures delivered to graduate students of the Johns Hopkins university—By WALTER B. SCAIFE, Ph. D. Baltimore: The Johns Hopkins Press, 1892, pp. 176. Price, $1.50.

Columbus and His Discovery of America.—By HERBERT B. ADAMS, Ph. D., and HENRY WOOD, Ph. D., Professors in the Johns Hopkins university. (Being Nos. X, XI in the tenth series of Johns Hopkins university studies in historical and political science.) Baltimore: The Johns Hopkins Press, 1892, pp. 88. Price, 50 cents.

President Gilman might almost inscribe *Nihil humani a me alienum puto* over the doors of the Johns Hopkins University, so unerring is the instinct of that remarkable institution in seizing and presenting the scientific side or phase of any great human interest. The present celebration of the four hundredth anniversary of the discovery of America has stimulated to a remarkable degree the study of American history and geography among the public at large. Orators on the platform, preachers in the pulpit, editors in the great journals, essayists and historians in the magazines and in books, have marshaled their knowledge and interpreted anew the lessons of the Western world and its development. In these two publications the Johns Hopkins University makes its contribution, but it is, in large part at least, to the scientific side of the subject. Dr. Scaife's admirable lectures on America's geographical history are earnestly commended to the attention of all teachers who have to deal, even remotely, with American history or geography. They abound in interesting and novel information, well told, and cannot fail to throw a flood of light on the methods of presenting geographical material of this sort to young pupils.

The address by Dr. Adams is on a high plane and is decidedly interesting, as is the briefer paper by Dr. Wood. In an appendix is put a note on the bibliography of the discovery of America.

N. M. B.

Philosophische Propadeutik: unter Mitwirkung von Dr. Alexius Meinong, k. k. Professor der Philosophie an der Universitat in Graz. I. Theil: Logik. von A. Höfler, Professor am Gymnasium der k. k. Theresianischen Akademie in Wien. Leipzig: Freytag, 1890, pp. xiv, 244.

This logic deserves notice in an educational magazine, because its purpose is so distinctly an educational one. Höfler has already written an essay *Zur Propädeutikfrage* and Meinong published a book in 1885, *Ueber philosophische Wissenschaft und ihre Propädeutik*. More than in the case of most text-books, the method of presentation demands and deserves criticism. The idea of the authors is suggested in words quoted from Bonitz (p. vii): "a discussion and working over of the subject with the students, a treatment of their objections and doubts, which are to be expressly awakened, when they do not appear of themselves." To limit as much as possible the amount of matter presented, to stimulate as wide and thorough a study of this as possible, is the author's aim. A short thesis is stated and then abundant and varied illustration, discussion, and criticism follow. The question how logic is to be taught is totally distinct from the question of method in writing a text-book on logic. For many teachers, examples and problems are more important in logic than in physics, as important as in algebra. A simple statement of definitions and results can rarely be made more valuable than a list of mathematical definitions and rules for the novice; indeed, it serves the same purpose as such a list, that of recalling what the student should know. Undoubtedly any subject takes more hold of the student when it is taught, as Bonitz long ago suggested, by making the student reach the results for himself. But if ever there is need of a teacher, a born teacher, it is in thus guiding the student's thought.

The attempt to write a text-book on this plan suggests the following objections: (1) it aims to do the teacher's work for him, and yet (2), without the guiding hand of the teacher, no single paragraph leaves a sufficiently definite, unified impression on the pupil's mind. Few men can use another man's work when it aims to map out their course in such detail, and the effort to do so ends in perfunctory and mechanical work. The plan needs life, and it is all but impossible to infuse life into a plan which is so elaborated on paper. (3) Granted that single paragraphs gave a definite result, in form to use, this is not true of longer sections. Take the section on judgment. Among the paragraphs are left a good many interrogation points which must remain so; and after reading the whole section, unless the mind has supplied a unification that is lacking, one has no definite idea of what result he has reached. The isolated reader and unskilled teacher have but a maze of criticisms and answers, the logical relation of the parts is not developed. But it is rather a thankless task to criticise a method which is so admirably carried out. No student can really study this book without doing more thinking about logic than many who have written text-books on the subject. No teacher can read it without getting new stimulus, and finding many suggestions by which he can help his pupils to appropriate and think for themselves the truths he would teach.

The question as to what constitutes logic is now fully reopened, after having been regarded as settled for nearly twenty centuries. That it deals with thinking—correct thinking—is generally admitted, but here agreement ends. And yet the reason why logic is taught in our colleges is plain enough. Hegelian logic aside, the purpose is to call the student's careful attention to thinking, to the method of reaching truth. Botany may be taught to increase the sum of the student's ready knowledge; it may better be taught to call the student's attention to plants, their structure and growth, and to make him think about them. With reference to this *pedagogical* end, logic is a well-defined subject. It examines thought as a psychological process, analyzes it into its elements, and the connections of these elements; finally, it carefully studies methods of investigation as well as of abstract thought. Judged by this standard, mathematical logic, which deals with the number of positings and negations which may be made in reference to a given set of terms, has comparatively a minor interest. Judged by this standard, logic is closely connected with rhetoric, and even with grammar; for rhetoric and grammar may be taught with this same end, that of teaching the student to think accurately and correctly.

This book of Höfler's takes a well-defined position in line with what I have just said. After a brief psychological introduction, the *Elementarlehre* discusses the concept, the judgment, inference, and proof, and the *Methodenlehre* outlines the theory of scientific research. Each section of the *Elementarlehre* begins with the psychological side of the subject, and this is made the basis for its logical treatment. Beginning with the section on the concept, the psychological basis is evident in the omission of the word *term*—concepts are the units for logic, not terms—in the omission of negative terms or concepts, and in the definition of *abstract*, as applying to the concept which has no representative image. Judgment, too, is a psychological process, a process totally distinct from that of thinking concepts. It is analyzed as the instrument of stating truth, and then the evidence for this truth is discussed.

I have passed by some slight inconsistencies, but the theory of the syllogism seems to start from a wholly new standpoint. No mention is made of the psychological process, but instead we have a section on the law of sufficient reason. The basis seems to be shifted from psychology to the theory of knowledge. In a sense this is only apparent, for the syllogism is treated under the general heading of judgment; but certainly a word as to the psychological process would have left the subject clearer. This section is Aristotelian in its matter, and excepting the short section on *inference from a single premise*, it is admirably presented. The careful attention to proof of the syllogism and its rules, is certainly to be commended. The difficulty of the subject is seen in the recurrence to rules and methods which belong to a sort of symbolic logic—even the negative term is used with freedom.

There is a prejudice against the study of more than the barest *Elementarlehre* in the Austrian gymnasium, so that the section on the theory of scientific research is very brief. To accomplish this Höfler has treated the concepts of *cause*, *power*, *faculty*, etc., under the topic *concept;* judgments expressing cause under *judgment;* and the whole theory of induction is given under the heading *probable inference.* These topics having been disposed of, the *Methodenlehre* is brief enough. It has the same excellence of wide illustration and criticism, the same faults of failure to sum up clearly the results reached, that the rest of the book has shown.

In conclusion, the book has hardly reached its own ideal, but it treats logic successfully from the pedagogical standpoint, when more pretentious books have failed to define a distinct science.

ARTHUR FAIRBANKS

YALE UNIVERSITY

Word-Building.—By BRAINERD KELLOGG, LL. D., and ALONZO REED, A. M. New York: Effingham Maynard & Co., 1892, pp. 122.

This little book contains fifty lessons, combining Latin, Greek, and Anglo-Saxon roots, prefixes, and suffixes into about fifty-five hundred common derivative words in English, with a brief history of the English language. A work of this kind cannot contain anything new except matters of arrangement and method. The arrangement adopted here is the alphabetical, as far as the roots are concerned. The method is the synthetic; that is, the pupil is required to build up words from a given root by the addition of prefixes and suffixes. Experience seems to show, however, that the study of the formation of words in this way is excessively wearisome to the pupils, even though great stress be laid, as it is here, on tracing the derived or metaphorical meanings of words from the original meanings of the roots. Indeed, it is very doubtful whether the average mind is capable of retaining the vast mass of information presented within so small a compass. The trend of opinion among educators seems to be that the study of the formation of words is better taken up in connection with the critical study of literature. The analysis of the word "indentation," for example, is a much more agreeable exercise when done with the express object of getting at its meaning in a particular context, than when it is studied as a separate thing. And whatever increases the pleasure of an exercise, increases its usefulness.

Excellent as it is of its kind, *Word-building* does not easily lend itself to what may be called the incidental method of studying word-formation in connection with literature, as the derivative and compound words are not given in alphabetical order, and hence are difficult of access. To those teachers who still prefer the study of isolated words, the method and arrangement will appear altogether admirable.

W. H. M.

Essays and Notes on Shakspere.—By JOHN W. HALES, M. A. New edition. London and New York: Macmillan & Co., 1892, pp. x, 300.

Professor Hales's volume—of which this issue is a second edition—is made up of twenty-eight papers written for English periodicals between the years 1870 and 1880. Of these papers by far the larger number are "Notes" rather than "Essays," being short book reviews or bits of Shakspere discussion reprinted from the *Athenæum* or *Academy*. The book reviews contain little that would seem to justify their preservation in this permanent form. The other short papers are mostly concerned with matters of textual criticism, and, though of little interest to the general reader, contain considerable of real value to the Shakspere student. The paper on the Porter in *Macbeth*, for instance, is an excellent specimen of Professor Hales's careful scholarship and sound sense. Of the four or five longer papers, which may with more propriety be called essays, the most noteworthy are two contributed to the *Quarterly Review*, some twenty years ago. One is an excellent piece of "æsthetic" criticism on *King Lear;* the other is an article on Chaucer and Shakspere. This last is the most valuable thing in the volume. The earlier pages, which are taken up by an estimate of Chaucer's literary work, bear evidence, by a certain didacticism of tone, to the fact that they were written almost a generation ago, when the average reader of reviews could not be expected to know his Chaucer so well as he does to-day; but the latter part of the essay contains much valuable matter, not only upon the relation of Shakspere to Chaucer, but upon the general reputation and influence of Chaucer in the sixteenth century. Indeed, up to a few months since, one might perhaps have pronounced the essay the best brief discussion of the subject accessible; it has now been superseded, of course, by the free discussion of Chaucer in literary history given in the third volume of Professor Lounsbury's great work.

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Longmans' Object Lessons.—By DAVID SALMON: Revised and adapted to American schools by John F. Woodhull, Professor of methods of teaching natural science in the New York College for the training of teachers. New York: Longmans, Green & Co., 1892, pp. 238.

Mineralogy.—By FREDERICK H. HATCH, Ph. D., F. G. S., of the Geological Survey of England and Wales. New York: Macmillan & Co., 1892, pp. 124.

Lessons in Zoology—By CLARIBEL GILMAN. Boston: New England Publishing Co., 1892, pp. 129.

A four years' course in science is here scheduled that embraces botany, zoölogy, chemistry, and physics. The four subjects are studied throughout the course, the lessons being graded to suit the stage of intellectual development of the child. The plan adopted is eminently objective and inductive. Thus, to gain the knowledge that a cat's tongue is rough, the child is to bring the cat into the schoolroom and allow it to lap milk from his hand; this is to lead to conversation concerning the usefulness of the rough tongue. To gain the idea of plasticity, the child tries to mold with dry plaster of Paris, then moistens it and repeats the molding experiment: by way of contrast he next tries to mold with moist sand, then with clay, putty, cold and warm gutta-percha, discovering by his own efforts the property of *being able to be molded* and classifying the objects accordingly. The next lesson is an outgrowth of this one, the bricks molded from the clay furnishing the topic. So, throughout the book, new knowledge gained is made the stepping stone to something higher, coordinating not only the facts of any one science but also the various sciences themselves.

The process of comparing objects, in order to determine their similarities and differences as a basis of classification, is most admirably developed. Indeed, this is the most striking feature of the book. · Manuals heretofore have, as a general rule, treated each object as if it were isolated from all else in the material world, and as if the facts concerning that particular object were of prime importance. This book subordinates the knowledge gained of particular objects to the use of objects as a means of exercising the powers of observation, comparison, and generalization.

The topics selected for lessons are in the main the ordinary everyday objects with which the child is environed. Where for the sake of its practical utility an exotic is selected, such as the coffee plant or sugar cane, pictures of the plant are to be used. This is to do away with the complaint of the teacher that needed objects cannot be obtained. Even in the cities a slight effort will procure the objects needed for these lessons.

The object of Mr. Hatch's book is evidently to present the leading facts of mineralogy in an interesting and readable form. The author has succeeded as well as one might fairly expect, since to popularize mineralogy is no easy task. For the observation of life which makes the study of animate nature so charming, there must be substituted in the study of minerals the consideration of definite form, fixed relation of sides and angles, and unchangeable chemical composition. A subject like mineralogy, therefore, which has little power to fascinate the young student, demands greater skill on the part of the teacher and book-maker.

While Mr. Hatch's work is not designed especially for a text-book, it has the qualities of clearness, conciseness, and interest requisite for a good text-book. It is divided into two parts. Part first treats of the qualities of minerals ; part second, of the classification and description of minerals. As a practical aid to students, part first is superior to part second. The clearness with which the difficult but important subject of crystallography is presented is very valuable ; so also chemical composition, specific gravity, hardness, cleavage, fracture, and phenomena relating to light are as lucidly presented as is possible, consistent with the extreme brevity of the book.

Part second is not sufficiently exhaustive to be of much importance to the practical mineralogist and is too technical for the amateur. It is indeed difficult to determine to what use the author intended to adapt this part, for it presupposes considerable knowledge of chemistry and the origin of the earth's crust, while it dips in a very shallow way into petrology. Its technicality is not consistent with the elementary character of the first part. It would have been better to have closed with the first part ; this would have formed an excellent preparation for the use of any standard manual of mineralogy.

As a manual for teachers Gilman's *Lessons in Zoölogy* is rich in suggestion. Its lessons include typical forms of the animal kingdom below the vertebrata and above the protozoa. Each specimen selected is accurately examined as to structure and is illustrated by simple drawings such as the children can make from the real object.

Of the twenty-six objects upon which lessons are given, half can be obtained in the living state only at the sea-shore. This limits the maximum usefulness of the book to sea-shore districts, although the plan of study may be profitably applied to any available object. Again, there is a lack of interesting material relating to the life history and habits of animals. Many stumbling blocks in difficult points of structure are removed—and in this the book is very able—but the ideal manual must combine anatomy and scientific classification with the lighter and more fascinating aspects of zoölogy—such as provisions for defense, warfare, social habits, nest building, economic value of animals, etc.

So far as Miss Gilman's book goes, it is very helpful. It is a question, however, whether the lower forms of life, such as the hydra and the sea anemone, should, on account of their simplicity of structure, be selected as the point of beginning or whether the higher forms, whose structure needs no microscope and whose habits are so intensely fascinating, should not rather be selected as the means of developing in children that love for the subject which shall inspire them to continued and more exhaustive study as they grow older.

A. B. P.

IX

EDITORIAL

Jena is to follow the example of Chautauqua and Oxford, and in 1893 a holiday course in the modern languages will be held there. The object of the course is to provide opportunity for the acquirement of German (by English students) and of English (by German students) by means of associated study. It is not regarded as an adequate preparation for the modern language teacher, but as a supplementary aid for those who cannot find time or means for continued residence abroad. Formal lectures are to be followed by informal conferences and social intercourse between German and English teachers. A pedagogical turn will be given to the course by insisting at every opportunity on the study of the methods of modern language teaching. Jena is excellently situated for such a course as this, and it is probable that some American teachers will wish to take part in it. The committee having the matter in charge is made up of Mr. John J. Findlay, Professor Kluge, Dr. Noack, and Professor Rein.

The Barnard club of Providence, which has already done much to stimulate a serious and studious interest in education among the teachers of Rhode Island, is maintaining this winter a systematic course of lectures on pedagogical subjects. The lectures are scientific rather than popular, and deal with modern educational psychology, the principles of education, and fundamental questions of method. The work is regarded as an experiment, but is meeting with marked success and may be expected to grow into something more extensive and permanent.

The annual meeting of the College association of the Middle States and Maryland, held during the Thanksgiving recess at Swarthmore college, was well attended and interesting. The programme was respectable without being remarkable. The high schools and their relation to the colleges were much talked about, and the wretched condition of the Pennsylvania high schools was exposed in a way that ought to force improvement from a sense of shame alone. The perennial subject of English teaching in colleges was well introduced by Professor Schelling and the veteran March, but the discussion that followed was disappointing. President Gilman and Dr. Trotter made their subject—geography as a scientific basis for the study of history and biology—both entertaining and practical, and aroused no little interest in it. President Low's address, which will be found in full elsewhere in this issue, was cordially received by a large audience.

The Association took an important step in changing its name and enlarging its membership so as to include representatives of the preparatory schools. It will hereafter be the Association of the colleges and preparatory schools in the Middle States and Maryland. A few colleges were disposed to resist this change, but the majority was against them. That this step was wisely taken there can be but little doubt. More than half of the topics ordinarily discussed at these meetings involve considerations that lead directly to the work of the secondary schools; their co-operation with the colleges is, at this time, one of the most desirable things in American education.

The Association will meet in 1893 at Columbia college, under the presidency of President Taylor of Vassar, and it is safe to predict an unusually large attendance. Preparatory schools in the Middle States and Maryland that wish to join the Association should send their applications without delay to the chairman of the executive committee, Professor Butler, at Columbia college.

Princeton college has announced during the month certain changes in its requirements for admission that demand more than a passing notice. In all, twenty-eight subjects are specified for examination; of these fourteen must be offered by every candidate. The remaining subjects are for those who wish to take advanced standing in the freshman class, but whether this advanced standing will lessen the period of residence required for the degree is not stated. The supplementary list of subjects includes Ovid, Sallust, additional work in Vergil and Xenophon, advanced French and German, solid and spherical geometry, and plane and spherical trigonometry.

No subject in natural science is found in the list, and only the barest modicum of English. Of the twenty-eight subjects, eighteen are classical. Indeed, the whole scheme is a surprisingly bold challenge to the best educational tendencies of the time, and can only be described as reactionary. It cuts the college loose from the great public high schools and makes it depend entirely upon the private institutions that can afford to cater to a Princeton constituency. The principle of minimum and maximum requirements that is introduced is good but not new; Harvard has applied it for several years, and in a much better way, it must be said, than Princeton now proposes to do. In itself, the principle is a good one, but to omit natural science from the scope of its operation is folly.

With this single exception, the changes proposed are altogether bad. It is hard to believe that they would have been proposed if the Princeton faculty were represented more fully and frequently at the great educational meetings where these matters are studied and discussed. At a time when everyone else is trying to make college entrance examinations simpler, while putting them on a higher plane, Princeton proposes to make them more complex and says nothing about demanding a better preparation in the old subjects. At a time when everyone else is considering whether Attic Greek alone should not be read in the schools, Princeton adds to the Homeric dialect that of Herodotus, basing this surprising innovation on the curious argument that Homer wrote earlier than Herodotus and that the *Iliad* should not be used as a "parsing book." If the argument were sound, which it is not, it proves too much and makes against rather than for the Princeton proposal.

The effect of this new departure will be to add to the troubles of the fitting schools, and it is a positive step backward for the institution that makes it. It emphasizes again how hard it is to make any real progress in dealing with educational matters in this country, for each institution is at liberty to indulge its own crochets.

An important session of the Committee of arrangements for the international congresses of education was held at the

Drexel Institute, Philadelphia, on November 19. The plans suggested for the organization and administration of the congresses were discussed at length and in detail. The conclusions arrived at, which will be embodied in a circular to be issued by the Commissioner of Education, are these:

The congresses will be convened in the building to be provided for the purpose in Chicago, on Tuesday, July 25, 1893, and the three following days. A general session will be held on Tuesday evening and another on Friday evening. These will be presided over by President James B. Angell of the University of Michigan, as the representative of the institutions for free higher education in the United States. The fifteen special or departmental congresses will be assigned to the mornings of Wednesday the 26th, Thursday the 27th, and Friday the 28th of July. Afternoon sessions on the same days may be arranged for, if thought desirable.

These congresses, and the names of the presidents designated for them, are as follows: Kindergarten education, Mrs. James L. Hughes of Toronto; Elementary education, General John Eaton of Washington, D. C.; Secondary education, Headmaster James C. MacKenzie of Lawrenceville, N. J.; Higher education, President Daniel C. Gilman of Johns Hopkins university; School supervision, Superintendent Andrew S. Draper of Cleveland, O.; Technical education, President Francis A. Walker of the Massachusetts Institute of Technology; Industrial education, Dr. John D. Runkle of Brookline, Mass.; Art education, Director Halsey C. Ives of the Art School, Washington university, St. Louis, Mo.; Physical education, Dr. Edward M. Hartwell of Boston, Mass.; Normal school education, Dr. Edward A. Sheldon of Oswego, N. Y.; Business college education, Professor George Soulé of New Orleans; Rational psychology, Dr. James McCosh of Princeton, N. J.; Experimental psychology, President G. Stanley Hall of Clark university, Worcester, Mass.; Educational publications, Henry Barnard of Hartford, Conn.

Admission to these congresses will be by ticket, which will only be issued to those persons who register and pay the fee of $2 at the office of the treasurer of the National Educational Association. This office will be open just before and during the congresses, in the same building in which they are held. A ticket will entitle the person to whom it was issued, to admission to any one, or to all, of the congresses, and also to the volume of proceedings when published.

Early in the spring the programmes will be agreed upon and made public. The success of the congresses seems to be assured, as many distinguished foreigners have already indicated their intention to be present and great interest is being taken in them by American teachers. They will add another to the long list of triumphs recorded by the National Educational Association.

Of the meetings of the Massachusetts State Teachers' Association in recent years, the one at Springfield on November 25 and 26 stands easily at the head. The attendance was not so large as it has frequently been; but the topics discussed were of a fundamental as well as a practical character, and they were handled with consummate ability. It is not possible in a brief notice to touch upon them all, though no one of them was without special interest. On the first afternoon of the session, the high school, grammar, and primary sections met in separate halls. At each of the general sessions and in the high school section, the emphasis was placed, where it most certainly belongs, upon the literary or humanitarian studies; and there was the keynote of the meeting. In no recent educational gathering has there appeared so much evidence that, at last, education is coming to be recognized as a process of human development for human happiness and human need.

Those familiar with educational associations for the last twenty years are struck with the changed attitude of the colleges toward the schools of the lower grades, and of the high schools toward the grammar and the primary schools. It is within the memory of the present attendants upon these conventions, that a college president who concerned himself about the discussion of primary education, and attended the meetings of primary and grammar school teachers, lost caste among his fellows. Twenty years ago the presidents of some of the younger colleges in the West did indeed associate in convention with the teachers of the public schools, and Dr. McCosh of Princeton joined them, and in this he was in advance of his time by about a score of years; but for the president of Yale or of Harvard to be seen in such company twenty years ago would have seemed as incongruous as to find Daniel

Webster present and taking part in the debating society of a country school. There was also a time not long ago when between the high school and the grammar school there was a great gulf fixed. No pupil was admitted to the higher realm without passing the ordeal of a rigid examination, in which his former rank and his former school record had little if any influence. All this has now changed. Education is regarded as a continuous process. The college takes a vital interest in the first steps in the primary school and in any step from first to last in all the grades of schools. Kindergarten teachers and presidents of universities meet on the common level as co-workers in the educational vineyard; and more and more pupils are advanced from grade to grade—from elementary to secondary schools, and from those to the high school or college courses—upon the judgment of those who have taught them and learned their capacity, rather than upon the hasty and imperfect judgment of an examination by those who are to teach these pupils in the future. In education as in religion the stereotyped processes and restrictions of the past have gradually yielded to the liberalizing tendency of the age. For dogma and adherence to creeds religion now substitutes the spirit that should dwell in the individual; and in like manner, instead of an arbitrary curriculum and arbitrary methods to be imposed upon all, we find in education a recognition of the individual pupil, his needs and his aptitudes, and a disposition to adapt the instruction to these needs for the great purpose of developing him; and this sentiment found ample expression at Springfield.

It was a delight to hear from Professor Hart of Harvard the appreciative recognition of the work which sincere and capable teachers of primary and grammar schools are doing for public education, as not inferior in importance to that of the colleges. The president of Tufts college, and others not less distinguished, reiterated the same sentiment; and in the sessions generally, the discussions seemed quite uniformly to assume that school training in all its stages rests upon the same philosophy, and that no one of these stages is inferior in importance. Thoughtful students of education have noted and regretted the tendency toward a kind of training which shall only fit the young for an early success in business life—mere money-getting or political and social advancement. President Schurman's strong, bold words were in pleasing contrast to this tendency. "If we nowadays seek an analogy for the mind," he said, "we find it in the living organism more than anywhere else; and education is a food for this organism rather than a whetstone to sharpen the faculties. If mere development of the faculties were the purpose of education, then education could be obtained in the practical occupations of life much better than in the school. Put English language and literature first, and take half the time to teach these liberal, humanizing lessons. This is the only enduring educational foundation." In the same strain Mr. Mabie of the *Christian Union* said, "the freshness of knowledge is the great secret of education. The end of education is to turn every fact into a truth as fast as you can do it. We pass through all knowledge and fact to the truth behind it: these are the creative elements which are to stand as the foundation of the whole."

"Ethical instruction," said Professor Palmer of Harvard—"the principles of morality—is not appropriate in elementary schools." It is practical morality—learning virtue by virtuous living, the practice of virtue—that should be sought in schools; and for a child to be self-conscious, consciously conscientious—to be fingering his motives—will produce a kind of moral and intellectual stuttering, or hesitancy, and lead at length to what might be termed moral "nervous prostration." Intellectual and moral spontaneity is what leads to healthy growth.

It will be seen from this outline that the discussions at the Springfield meeting were raised to a plane above the usual low level of petty methods and dull detail which too frequently characterize such gatherings. The friends of popular education may congratulate themselves that one meeting has been held where the true spirit of education has not been lost sight of in attention to the form of technical teaching.

As this number of the EDUCATIONAL REVIEW is issued the nine conferences on the curriculum of the secondary schools[1] are in session at the places designated. Those on Latin and Greek meet at Ann Arbor; that on English at Vassar college; that on other modern languages at Washington; that on mathematics at Harvard university; those on physics, etc., and on natural history at Chicago; that on history and civil government at Madison; and that on geography at the Cook county normal school. The membership of the conferences is as follows:

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[1] EDUCATIONAL REVIEW, IV: 203, 514.

Latin: F. L. Bliss, Principal of the Detroit High School, Detroit, Mich.; Jno. T. Buchanan, Principal of the Central High School, Kansas City, Mo.; William C. Collar, Head-master of the Roxbury Latin School, Roxbury, Mass.; David Y. Comstock, Hotchkiss School, Lakeville, Conn.; J. S. Crombie, Principal of the Adelphi Academy, Brooklyn, N. Y.; Professor James H. Dillard, Tuiane University, New Orleans, La.; Rev. William Gallagher, Principal of Williston Seminary, Easthampton, Mass.; Professor William G. Hale, Chicago University, Chicago, Ill.; Julius Sachs, Principal of the Collegiate Institute for Boys, New York City; Professor C. H. Bennett, Cornell University, Ithaca, N. Y.

Greek: E. W. Coy, Principal of the Hughes High School, Cincinnati, O.; Professor Martin L. D'Ooge, University of Michigan, Ann Arbor, Mich.; A. F. Fleet, Principal of Missouri Military Academy, Mexico, Mo.; Ashley D. Hurt, Head-master of the High School, Tulane University, New Orleans, La.; Robert P. Keep, Principal of the Free Academy, Norwich, Conn.; Professor Abby Leach, Vassar College, Poughkeepsie, N. Y.; Clifford H. Moore, Phillips Academy, Andover, Mass.; William H. Smiley, Principal of the High School, Denver, Col.; Professor Charles F. Smith, Vanderbilt University, Nashville, Tenn.; Professor Benjamin I. Wheeler, Cornell University, Ithaca, N. Y.

English: Professor Edward A. Allen, University of Missouri, Columbia, Mo.; F. A. Barbour, Principal of the Michigan Normal School, Ypsilanti, Mich.; Professor Frank A. Blackburn, Chicago University, Chicago, Ill.; Professor Cornelius B. Bradley, University of California, Berkeley, Cal.; Professor Edward E. Hale, Jr., University of Iowa, Iowa City, Ia.; Professor George L. Kittredge, Harvard University, Cambridge, Mass.; Charles L. Loos, Jr., High School, Dayton, O.; W. H. Maxwell, Superintendent of Schools, Brooklyn, N. Y.; Professor F. B. Gummere, Haverford College, Pa.; Samuel Thurber, Master of the Girls' High School, Boston, Mass.

Other Modern Languages: Thomas B. Bronson, Lawrenceville School, Lawrenceville, N. J.; Professor Alphonse N. Van Daell, 'Massachusetts Institute of Technology, Boston, Mass.; Charles H. Grandgent, Director of Modern Languages in the Public Schools, Boston, Mass.; Professor Charles Harris, Oberlin College, Oberlin, O.; Professor Edward S. Joynes, South Carolina College, Columbia, S. C.; William T. Peck, High School, Providence, R. I.; Professor Sylvester Primer, University of Texas, Austin, Tex.; John J. Schobinger, Principal of a Private School for Boys, Chicago, Ill.; Dr. L. F. Soldan, Principal of the High School, St. Louis, Mo.; Isidore H. B. Spiers, William Penn Charter School, Philadelphia, Pa.; Professor Walter D. Toy, University of North Carolina, Chapel Hill, N. C.

Mathematics: Professor William E. Byerly, Harvard University, Cambridge, Mass.; Professor Florian Cajori, Colorado College, Colorado Springs, Col.; Chancellor W. S. Chaplin, Washington University, St. Louis, Mo.; Arthur H. Cutler, Principal of a Private School for Boys, New York City; Professor Henry B. Fine, College of New Jersey, Princeton, N. J.; W. A.

Greeson, Principal of the High School, Grand Rapids, Mich.; Professor Simon Newcomb, Johns Hopkins University, and Washington, D. C.; James L. Patterson, Lawrenceville School, Lawrenceville, N. J.; Professor George D. Olds, Amherst College, Amherst, Pa.; Professor T. H. Safford, Williams College, Williamstown, Mass.

Physics, Astronomy, and Chemistry: Professor Brown Ayres, Tulane University, New Orleans, La.; Irving W. Fay, The Belmont School, Belmont, Cal.; Alfred P. Gage, English High School, Boston, Mass.; Professor William W. Payne, Carleton College, Northfield, Minn.; W. C. Peckham, Adelphi Academy, Brooklyn, N. Y.; William McPherson, Jr., Ohio State University, Columbus, O.; Professor Ira Remsen, Johns Hopkins University, Baltimore, Md.; Professor J. H. Shepard, South Dakota Agricultural College, Brookings, S. D.; Professor William J. Waggener, University of Colorado, Boulder, Col.; George R. White, Phillips Academy, Exeter, N. H.

Natural History (Biology, including Botany, Zoölogy, and Physiology): Professor Charles E. Bessey, University of Nebraska, Lincoln, Neb.; Arthur G. Boyden, Normal School, Bridgewater, Mass.; Professor Douglas H. Campbell, Leland Stanford Jr. University, Palo Alto, Cal.; President John M. Coulter, University of Indiana, Bloomington, Ind.; Principal S. A. Merritt, Helena, Mont.; W. B. Powell, Superintendent of Schools, Washington, D. C.; Professor A. H. Tuttle, University of Virginia, Charlottesville, Va.; O. S. Westcott, Principal of the North Side High School, Chicago, Ill.; Charles B. Scott, Principal of the High School, St. Paul, Minn.; Professor Samuel F. Clarke, Williams College, Williamstown, Mass.

History, Civil Government, and Political Economy: President Charles K. Adams, University of Wisconsin, Madison, Wis.; Abram Brown, Principal of the High School, Columbus, O.; Professor W. W. Folwell, University of Minnesota, Minneapolis, Minn.; Professor A. B. Hart, Harvard University, Cambridge, Mass.; Professor Jesse Macy, Iowa College, Grinnell, Ia.; Professor Edward G. Bourne, Adelbert College, Cleveland, O.; Ray Greene Huling, Principal of the High School, New Bedford, Mass.; Professor J. H. Robinson, University of Pennsylvania, Philadelphia, Pa.; Henry P. Warren, Principal of the Albany Academy, Albany, N. Y.; Professor Woodrow Wilson, College of New Jersey, Princeton, N. J.

Geography (Physical Geography, Geology, and Meteorology): Professor Thomas C. Chamberlin, Chicago University, Chicago, Ill.; Professor W. M. Davis, Harvard University, Cambridge, Mass.; Alexander E. Frye, Superintendent of Schools, San Bernardino, Cal.; Delwyn A. Hamlin, Master of the Rice Training School, Boston, Mass.; Professor E. J. Houston, Central High School, Philadelphia, Pa.; Professor Mark W. Harrington, The Weather Bureau, Washington, D. C.; Francis W. Parker, Principal of the Cook County Normal School, Normal Park, Chicago, Ill.; G. M. Phillips, Principal of the State Normal School, West Chester, Pa.; Principal Charles F. King, Dearborn School, Boston, Mass.; Professor Israel C. Russell, University of Michigan, Ann Arbor, Mich.

The questions suggested for discussion in each Conference have been somewhat altered, and are given below in their final form.

1. In the school course of study extending approximately from the age of six years to eighteen years—a course including the periods of both elementary and secondary instruction—at what age should the study which is the subject of the Conference be first introduced?

2. After it is introduced, how many hours a week for how many years should be devoted to it?

3. How many hours a week for how many years should be devoted to it during the last four years of the complete course; that is, during the ordinary high school period?

4. What topics, or parts, of the subject may reasonably be covered during the whole course?

5. What topics, or parts, of the subject may best be reserved for the last four years?

6. In what form and to what extent should the subject enter into college requirements for admission? Such questions as the sufficiency of translation at sight as a test of knowledge of a language, or the superiority of a laboratory examination in a scientific subject to a written examination on a text-book, are intended to be suggested under this head by the phrase "in what form."

7. Should the subject be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who, presumably, are going to neither?

8. At what stage should this differentiation begin, if any be recommended?

9. Can any description be given of the best method of teaching this subject throughout the school course?

10. Can any description be given of the best mode of testing attainments in this subject at college admission examinations?

11. For those cases in which colleges and universities permit a division of the admission examination into a preliminary and a final examination, separated by at least a year, can the best limit between the preliminary and the final examinations be approximately defined?

The New York superintendents in their annual meeting, held at Yonkers, reiterated their oft-expressed judgment, that in future no person should be permitted to teach in the city and village public schools who had not qualified himself for his work by an adequate course of professional training. They decided to persist in their attempt to secure legislation giving State aid to the establishment and maintenance of training schools for teachers in cities and villages; an attempt that has been hitherto defeated, largely through political influence.

Another subject that engaged the attention of the New York superintendents was compulsory education. While accounts of gratifying success in the enforcement of the existing cumbrous and ambiguous statutes were given, the fact was very clearly brought out that in the greater part of the State the law is practically a dead letter. It was decided to recommend to the legislature the adoption of several amendments designed to increase the efficiency of the work. The more important of these amendments are the following: the years between which attendance during the entire school year should be made obligatory are seven and thirteen; failure on the part of parents or guardians to educate a child or send it to school should be made a criminal offense, punishable by fine or imprisonment; and cities or villages failing to provide for an adequate enforcement of the law should be punished by the withholding of their distributive share in the free school fund. At present the compulsory age is eight to fourteen, and attendance is required only fourteen weeks each year; the failure of a parent or guardian to provide education for a child is punishable only by civil process; while three-fourths of the cities and villages of the State have never made the slightest provision for the enforcement of the law. No one who has any conception of the danger to the common. wealth that arises from allowing the children of the thousands of illiterate immigrants that land in New York every week to grow up in ignorance, or who has the slightest appreciation of the difficulties involved in the attempt to enforce the present law, can have a moment's doubt as to the wisdom of the superintendents' suggestions.

One of the most interesting features of this very fruitful meeting was an address by the recently elected State superintendent, Mr. James F. Crooker. Mr. Crooker came out unequivocally and forcibly in favor of a project that had been suggested and strenuously urged by his predecessor, Mr. Andrew S. Draper, namely, the appointment by the legislature of a commission charged with the duty of investigating the entire educational system of the State and suggesting needed legislation. Should Mr. Crooker's advocacy of this plan result in its adoption, there can hardly be a doubt that such a commission would lead to a thorough overhauling of the State school system and the rooting out of many abuses that now flourish vigorously.

The election of Mr. James Godwin, assistant superintendent of New York City, as president of the Council for the ensuing year, is highly significant. Until very recently the New York City superintendents have held themselves aloof from their colleagues in the other cities of the State. The fact has not been creditable to the educational authorities of the metropolis and the results have really been disastrous to the cause of education there. During the last two or three years, however, largely through the efforts of Mr. Godwin, there has been a decided change, and his election by the Council was a graceful recognition of the fact. The New York superintendents should stand together. To overcome the forces arrayed against progress needs their united strength.

Dr. Brooks of Philadelphia has prepared an excellent programme for the meeting of the Department of Superintendence, to be held in Boston, February 21–23. As the National Educational Association will not meet, as such, until 1894, there is certain to be an unusually large and representative attendance of public school men at the Boston meeting, and they will be well repaid for any expenditure of time and money that may be necessary. Commissioner Harris will be heard on the lessons of school statistics concerning the moral influence of education. Superintendents Gilbert of St. Paul and Cogswell of Cambridge will discuss the reconstruction of the grammar school course, in the light of the Cambridge experiment, described by Professor Hart in the EDUCATIONAL REVIEW for October last. Superintendent Cooper of Galveston, whose strong paper at the Philadelphia meeting two years ago is well remembered, will attack the difficult problems presented by the system of examinations and promotions in elementary schools. Superintendents Maxwell of Brooklyn and Draper of Cleveland will read papers on school supervision and administration in large cities, while Superintendent Marble of Worcester will deal with his favorite subject of the teaching of English in public schools. Superintendent Curtis of New Haven will describe experiments in woodwork in grammar schools. President De Garmo will have a paper dealing with the comparative value of literature and history as agents in moral training. The ever present question of the professional training of teachers will be dealt with by Superintendents Gove of Denver, Balliet of Springfield, and Greenwood of Kansas City. Rural school topics are to be intrusted to Superintendents Waller of Pennsylvania and Poland of New Jersey, and Mr. Henry Sabin of Iowa.

To dispose of all these important subjects in three days and yet have time enough for discussion will be a difficult task, and cannot be accomplished unless Dr. Brooks insists on enforcing the rules strictly as to the time limit for papers and discussions.

The Commissioner of Education has submitted to the Secretary of the Interior his annual statement of the work of his Bureau, and in it brings his statistical tables down to the year 1890–91. It appears that in 1889–90, the enrollment of pupils in the common schools was 12,697,196, or 20.27 per cent. of the population. In 1880–81, the enrollment advanced to 13,203,170, and the average daily attendance was 8,404,228. The teachers employed in 1890–91 numbered 363,922, of whom just about one-third were males. The total expenditure for schools was $148,173,487, more than $92,000,000 of which was spent for salaries of teachers and supervising officers. About nineteen per cent. of the annual expenditure was devoted to permanent improvements, such as school sites, buildings, and furniture.

The statistics of higher education given by the Commissioner are also interesting. It appears that the United States can boast of 430 colleges and universities. An impartial critic would probably classify them as universities, five; colleges with graduate departments of high grade, 10; colleges, (say) 200; secondary schools giving more or less instruction of collegiate grade, (say) 215. It is a pity that we cannot have this screening process applied officially and authoritatively.

The 430 so-called colleges and universities require the services of 8462 professors and instructors, of whom 7350 are men. The students in these institutions number 122,323, of whom 92,589 are males; 20,951 students are pursuing courses leading to the A. B. degree, 7311 look forward to the degree of B. S., 2317 to that of B. L., 2779 to that of Ph. B., 1060 to that of C. E., and 1437 to various other more or less significant titles: 3978 students are in pedagogical courses, 6358 in business courses, and 4115 are pursuing partial or special courses of various kinds. There are 177 normal schools—131 under public supervision, and 46 private institutions—having 1986 teachers and 42,307 pupils preparing for this work of teaching. They also give academic instruction to 10,303 pupils.

Commissioner Harris brings out clearly the vast work that the Bureau is doing and the increasing value of its library and collections. He sapiently remarks that the function of the Bureau, as defined by Act of Congress, is "that of aiding local self-direction of schools in all parts of the country and not that of furnishing centralized direction from Washington." It is to be hoped that the fantastic and imaginative person who writes warlike articles on the Bureau of Education for the *Catholic Review*, will not pass the above sentence by. It ought to act as a sedative to quiet his fears that the United States army, with the Commissioner of Education at their head, may march on New York and close up, *vi et armis*, all private and parochial schools.

"All's well that ends well," even though it relates to the provision for an educational exhibit at the World's Columbian Exposition. About 150,000 square feet of space is now available for the educational exhibit, which will be placed, as originally intended, in the Liberal Arts building. A new building is to be erected, and the ethnological exhibit, previously assigned to the Liberal Arts building, will be transferred to it. The space thus vacated, plus several thousand square feet hitherto unassigned, will make a very fair provision for education. The directors have surrendered only at the point of the bayonet, so to speak, and in not the best of temper. Preparations to occupy the space properly should now go forward with all possible speed, and assignments to the several States ought to be made without a week's delay.

The EDUCATIONAL REVIEW takes pleasure in complying with the request of the Association of officers of New England colleges to print the following memorandum, which was prepared at its recent meeting held at Williams college. The Association, it must be said, weakens the force of its recommendations and displays a lack of backbone somewhere, by adding that no college faculty is committed to the policy outlined. If the policy is a good one, why are the college faculties not committed to it? The memorandum is as follows:

> The Association of officers of colleges in New England, impressed with the real unity of interest and the need of mutual sympathy and help throughout the different grades of public education, invites the attention of the public to the following changes which, without insisting upon details, it

recommends for gradual adoption in the programme of New England grammar schools.

1. The introduction of elementary natural history into the earlier years of the programme as a substantial subject, to be taught by demonstrations and practical exercises rather than from books.

2. The introduction of elementary physics into the later years of the programme as a substantial subject, to be taught by the experimental or laboratory method, and to include exact weighing and measuring by the pupils themselves.

3. The introduction of elementary algebra at an age not later than twelve years.

4. The introduction of elementary plane geometry at an age not later than thirteen years.

5. The offering of opportunity to study French, or German, or Latin, or any two of these languages, from and after the age of ten years.

6. The increase of attention in all class-room exercises in every study to the correct and facile use of the English language.

In order to make room in the programme for these new subjects the Association recommends that the time allotted to arithmetic, geography, and English grammar be reduced to whatever extent may be necessary.

The Association makes these recommendations in the interest of the public school system as a whole; but most of them are offered more particularly in the interest of those children whose education is not to be continued beyond the grammar school.

EDUCATIONAL REVIEW

FEBRUARY, 1893

I

THE NEED OF UNIVERSITIES IN THE UNITED STATES[1]

"Eternal vigilance is the price of liberty!" The children of this country are sure to have this sentence indelibly impressed upon their memory. The history of the United States cannot be taught without mentioning it, and no teacher will mention it without inculcating in the youthful minds the overshadowing political truth contained in the solemn warning. Without fully grasping its import, the past cannot be really understood. On the other hand, however, the present is not understood, if one fails to see that, so far as this country is concerned, its applicability as a battle-cry is forever gone. In the meaning which it conveyed to the forefathers, it is for Americans, in the main, a thing of the dead and buried past. If the liberty of the people of the United States ever becomes endangered, it will be by themselves. We need not stop to ask whether there is anybody else who might like to do it, for there is unquestionably no power on earth—neither without nor within—that could do it, if they be but true to themselves. And yet they could make no greater, no more portentous mistake than to think that they can with impunity assign the maxim to the political lumber room. It still holds good, and will never cease to do so. Only its meaning has become modified in consequence of their being themselves the only enemy to be dreaded. Yes, to be dreaded indeed, for an overbearing and tyrannical government can be overthrown and hostile armies can be conquered; but in a democratic republic the people are irresistible, for they are everything. Therefore eternal vigilance, constant watching of themselves is indispensable, and the only way to watch themselves effectually is to interpret the maxim thus: Incessant work is the price of liberty.

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[1] Oration delivered at the first Convocation of the University of Chicago, January 2, 1893.

Americans contend that popular government has stood the test in this country. All competent and fair-minded judges will concede that they have just cause to look back with patriotic pride upon the history of the United States; in other words that, taking all in all, the claim is well founded as to the past. If, however, the assertion is intended to mean that the past is in itself a sufficient guaranty as to the future, I for one am compelled to say: Beware! No greater danger to the ultimate success of popular government in this country is conceivable than the frame of mind from which such a claim would spring. I, too, have always been of opinion that the United States were sure to vindicate the cause of democracy in the future, as they have done in the past. To doubt it would be to despair of mankind, for it is unquestionable—whether we like it or not—that in the whole civilized world the future belongs to democracy, and in the United States democracy has in all essential respects a better chance, *i. e.*, more favorable conditions to work out the great problem successfully, than it ever can have anywhere else. But if I feel sure that the United States will not disappoint the hopes they have raised, it is solely because their whole history vouches for it, that the American people will never become intellectually and morally so debauched as to make such an insane claim the bark on which they might venture to weather the storms of the future. Not because what they have achieved suffices, may we confidently look ahead, but because it warrants the expectation that they will go on growing with their tasks as they have done heretofore. He must be blind indeed, who does not see how much they will stand in need of that.

I should have studied the history of the United States to little purpose for twenty-five years, if I were to think lightly of what they have accomplished. But with growing knowledge, not only my admiration has grown apace. The conviction has steadily grown upon me, and taken deeper root, that what they have done thus far have been but easy tasks in comparison to the problems in store for them. At first sight that may seem extravagant and preposterous, but reflection will, I think, compel all judicious observers to come to the same conclusion. The most careful scanning of the horizon does not reveal to my eye the smallest cloud which could be suspected the center of an approaching cyclone. Not the slightest basis is offered for the apprehension that the American people will ever again be called upon to make a supreme effort, as when the Articles of Confederation were supplanted by the Constitution of the United States, or in the Civil War. But if history teaches one lesson more forcibly than another, then it is this, that a crisis, requiring supreme efforts, is not what states and nations have to fear the most. If it befall a people still possessed of vitality, it is always overcome, just because the very existence is at stake. The innermost depths are stirred up, all the intellectual and moral energies are whipped into activity and strained to the utmost, the people rise above themselves, and the threatened catastrophe ultimately proves to have been a true blessing in disguise. A nation, which has been intellectually and morally unequal to a great emergency, must have had the characteristics of the hippocratic face stamped on its intellectual and moral life before the emergency arose. The crucial test of a people's vital forces is to obviate great crises by working out in a humdrum way the problems presented by its humdrum political and social life.

In the case of the United States these problems make demands upon the people, intellectually and morally, such as never have been made upon any people on the face of the earth. Everything the world has seen heretofore in this respect is, in comparison, dwarfed almost into insignificance. The unparalleled rapidity of their material development, as to wild territory brought within the pale of civilization, population, and wealth, the just boast of the past, is becoming a source of the greatest dangers for the future. Circumstances, with irresistible force, compel them to press onward with an intensity and impetuosity absorbing so much of the time, strength, and attention of the people, that it is next to impossible to attend to the perfection of what has already been achieved to the extent and in the manner it ought to be done. The child is already born that will live to see the day when the area of the present Union is inhabited by 120,000,000 to 150,000,000; and to make democracy work as well with a nation of 120,000,000 to 150,000,000, as it did with a nation of 60,000,000, is in itself no easy task. More than enough of elbow-room has been one of the main causes of the successes that have been thus far attained. This elbow-room rapidly diminishes from year to year, not only by the growth of population, but also by that peculiar feature of modern economic life, the accumulation of enormous wealth in a few hands—individuals and corporations—with a tendency to crowd out or swallow up all small competitors. The social question bids fair soon to assume, in some respects, a more intricate and dangerous character than in the Old World, from the very reasons which have thus far allowed the United States barely to taste the bitter cup of which Europe has had to drink in deep draughts. On the one hand, the vastness of economic possibilities gives wider scope and greater vigor to the tendency to concentrate wealth, driving it more frequently to provoking excesses, and, on the other, the masses are much more self-asserting and in every way better equipped for defense and offense in their warfare with capital. The dangers born out of these contests are aggravated by another tendency equally characteristic of our times: the concentration of population, like that of wealth. This tendency, too, is in the United States comparatively stronger than anywhere else, and many reasons conspire to render it peculiarly prolific of difficulties and dangers. In Europe almost every city of importance has a history of many centuries, which can be made, and usually is, more or less, made a source of conservative force. The swarms of newcomers find a nucleus of old elements, which tradition, custom, and law co-operate to endow with sufficient power of assimilation. The disorganizing and disintegrating tendencies carried into the community by the inordinately large accretions from outside find an array of counter-tendencies, as it were, intrenched behind strong breastworks, which it is not easy to carry by assault and would require a long time to take by regular approaches. In the United States the cities whose origin dates back beyond the beginning of this century are almost wholly confined to the thirteen original States; in most of those that are situated in other parts of the country, somebody is still living who has seen them in their first infancy, while many of them vie or surpass in population and wealth countless European cities of renown. But with their astounding growth in wealth and population, the science and art of municipal government and the homogeneity of their population have not grown apace. This leads me to the last problem I shall notice especially—certainly more perplexing and, perhaps, more fraught with dangers than any other. The European cities receive their accretions, with imperceptible exceptions, from their own country. In the United States, the throngs flocking to the cities come, to a very considerable extent, from Europe. In addition to the tremendous tasks forced by the age of steam and electricity upon all civilized peoples, a mountain of the hardest and toughest problems is piled upon the shoulders of a nation that, in a sense, is not a nation, urged on by its own temperament and, partly, compelled by the irresistible force of circumstances to accomplish in years what has taken nations, that were nations, generations and centuries to do. And wonderful, I am tempted to say, miraculous as the assimilating power of the American people has thus far proved itself to be, it has of late become highly questionable whether it will not be worsted by what it is asked to do now, for it well-nigh touches the bounds of the impossible. Not the bulk, but the character of immigration is beginning to open an appalling vista into the future. Immigrants, who have little more in common with the people of the United States than the human shape and the most general features of human nature, thrown in solid blocks of hundreds and thousands into the country, coming with the set purpose to form and remain distinct communities within the community, not only unable, but unwilling to be assimilated politically or socially, intellectually or morally—that is a danger calculated to make every reflecting patriot blanch. Every such colony, whether it be in the large cities, in a mining town, or anywhere else, is a blow struck at the very vital roots of American democracy.

The list of knotty problems which the American people are imperatively called upon to solve is far from being exhausted. But I have said enough to prove that if they should be tempted, by their achievements of the past, to say with the rich man of the parable: "Soul, thou hast much goods laid up for many years; take thine ease, eat, drink, and be merry," they would inevitably receive the same answer: "Thou fool!" Nor can they rely upon that "reserve of force and patriotism," which Mr. Bryce declares "more than sufficient to sweep away all the evils which are now tolerated." If this reserve fund of force and patriotism were ten times as great as it is, with regard to *these* problems it would be of no avail, if it is thought that they can and will be satisfactorily dealt with, by drawing to a sufficiently large amount upon it, when it has become an urgent necessity to do so. I say it again: at present appearances great crises are the least likely to occur. Now and then a squall, as another mad attempt of the anarchists and a great strike leading to the destruction of much property and the spilling of a good deal of blood, must, of course, be expected. Such disturbances, even if they rise to the dignity of a local civil war, will undoubtedly be suppressed. But what of that? Will thereby a single inch of ground be gained as to any one of the problems I have alluded to? No more than a delirious man is cured from his fever by being forced back into the bed, after he has broken loose from his nurse and smashed the windows. No, the

American people have to pay an infinitely higher price than some bloodletting now and then would be, if they want to leave to their children, unimpaired, the heritage of American democracy left to them by their sires. Work, steady, indefatigable, thorough work—work of the brain inspired by the heart, and work of the heart directed by reason—nothing less will do.

Nothing less! Yes, and no higher price is conceivable. They must draw upon their reserve of mental and moral force; they must draw largely upon it, not, however, at long intervals, when great emergencies arise, but day for day, year in and year out, although days, months, and years glide by in sober sameness, without anything to stir up either head or heart to that deep emotion which always generates unwonted strength. Will they be equal to that? If they are, they will once for all make good everything they have ever claimed for democracy. Will they be? I unhesitatingly answer yes, although I am not prepared to concede that no question is admissible as to whether they are equal to it. But I am fully convinced that they can be made equal to it, and that to do this, all that is needed is to make them see how it can and, therefore, must be done.

To discuss to-day this question in all its manifold bearings is, of course, impossible. The evening, however, will have been well spent, if we all go hence fully convinced that it is our patriotic duty, jointly and individually, everyone in his place, to exert ourselves to the best of our ability, to get that lever forged to which I shall presently call your attention. It is but one of the many which must be applied; but in the course of time it will be found to be the most powerful of all.

Material prosperity cannot secure the future of the United States; nay, if material prosperity is not made by other agencies a source of strength, it must become a source of weakness, hastening and rendering more inevitable their ultimate downfall and ruin. That is the stern decree of the eternal moral laws governing the history of mankind. So it has been from the dawn of recorded history, and so it must remain to the end of the world, unless human nature should undergo a radical change. The American people, consisting of men and women, have no human nature of their own, constructed upon different ethical principles, and therefore there can be no exception in their favor. The name of no people that has played a part in the history of civilization has ever been wiped from the tablets of history, unless it had failed to do its duty by itself in its intellectual and moral life. The conqueror's sword, sweeping out of existence a civilized people, so as to make it permanently lose its distinctive entity, has always been the instrument executing the verdict rendered by its victim's sins of commission and omission. The fate of states and nations has been laid in their own hands. They work out their destiny for weal or woe, for salvation or perdition, by growing apace with their material prosperity or falling behind it in their intellectual and moral life. If this be allowed to become stationary—as to activity, soundness, or elevation of the plane attained—decay is setting in. In all the respects named, it must grow better or worse; there is no third possibility.

Now, we have seen that the material development of the United States is going on at a bewildering rate, and that with it, at the same break-neck speed, a mass of problems of the first magnitude, and more complicated and difficult than any task ever imposed upon any other state, is crowding in upon the people. The logical conclusion is so plain that no child can fail to draw it correctly. In activity, soundness, and elevation of the plane, the intellectual and moral life of the American people must attain the very highest standard to prevent disaster falling upon them from the portentous clouds hovering over their future. Not merely a higher standard than the present one, or as high as that of this or that other people, but the very highest attainable. It is, however, an undeniable fact that, with regard to one of the principal agencies for the raising of the intellectual and moral standard, the United States are still lagging behind several of the leading nations of Europe. I do not say it as a reproach. I state a fact. I know full well the reasons why it is so, and I readily acknowledge that for these reasons it hardly could be otherwise. But I do not acknowledge that it need or may remain so. I most positively assert that the time has come when it can be changed, and, therefore, must be changed without further delay.

There is in the United States, as yet, not a single university in the sense attached to this word by Europeans. All the American institutions bearing this name are either compounds of college and university—the university, as an aftergrowth, figuring still to some extent as a kind of annex or excrescence of the college—or hybrids of college and university, or, finally, a torso of a university. An institution, wholly detached from the school work done by colleges, and containing all the four faculties organically connected to a *Universitas literarum*, does not exist.

The day, when it could be seriously asserted that the United States cannot afford to have such institutions, is surely past. A nation paying for pensions a sum considerably higher than the cost of the standing armies sucking out the life-blood of the European nations, not able to maintain universities—it is too absurd to deserve refutation. The other allegation, inherited from the past, that there is no need of such institutions in this "plain democratic" country, is deserving of a still severer rebuff. Even if the universities are considered only as schools for imparting certain professional knowledge, it is a slur upon the American people, which I, though not to the manner born, shall never allow to pass uncontradicted. Count the American students going over to Europe, and those flocking to your own institutions coming, in this or that respect, nearest to the standard of European universities, and then tell me again there is no need, *i. e.*, no demand, for universities! I have not only visited, but lived in a number of countries, and the results of my observations of their higher educated youth is, that, though by no means as to knowledge, yet as to the earnestness, steadiness, and enthusiasm in the pursuit of knowledge, the

American students stand first. And nature has not been in a stingy mood when weighing out their allotment of brains! Give them but the opportunities, and you will soon see whether they need to shun the comparison with the scholars of any other nation. They are handicapped in the race, handicapped in a way which makes the blood of a true friend of this country tingle with impatience. You are a proud people. Ay! Mount the steed of your pride, and press the spurs into his flanks till they quiver with pain. Be done, once for all and in every respect, with that nonsensical and humiliating prating about the "good average" being all the "plain democracy" needs or has any use for. No, I say, and again no! This nation of sixty-five million dare not assign to itself such an unworthy position. It has achieved too much in the past, and it must achieve too much in the future, to rest satisfied with excelling as to the average; if it does not strive with intent purpose to excel also in everything above the average, satisfied with nothing less than the best and the highest, it will and must fail. If democracy, because it rests upon the principle of equality, ought to retain, as much as it possibly can, the character of a plane—an elevated plane, but still a plane—then the sooner the world has done with democracy, the better. The preachers of this doctrine are the worst enemies of the masses, whose interests they pretend to champion. The most effectual way to lift the masses to a higher plane—materially, intellectually, and morally—is to do everything favoring the climbing up of an ever increasing minority to higher and higher intellectual and moral altitudes. Therefore universities of the very highest order become every year more desirable, nay, necessary for the preservation and the development of the vital forces of American democracy. Undoubtedly, to have them established is in the interest of those who would frequent them, but it is still infinitely more in the interest of the American people in its entirety.

This would hold good, even if the universities were but, as I said before, schools for imparting certain professional knowledge. If the universities would furnish to the American people professionals of the order A, where they have thus far had to put up with the order B, and of the order B, where they had heretofore to be contented with the order C, I, for one, do not know of anything done by the American people rendering them unworthy of better service. Every American would consider it a gross insult if he were told he ought not to buy a coat of good cloth, because shoddy is amply good enough for him. Is it not a much worse insult to say Americans ought not to provide for obtaining the best professionals of every kind, for what the institutions of an inferior standard turn out will do very well for them? Nor is there any force in the argument that America has—especially in some branches, as for instance the law—many good professionals, and quite a number of excellent ones, who have never enjoyed the advantages of a first-class university. Might they not have reached a still higher round of the ladder if they had had those advantages? At all events it is better to have 1000 than 10 good ones, and out of 1000, 990 can acquire only with the help of superior advantages what 10 attain by dint of genius or extraordinary application. Nature's favorites stand much less in need of first-class universities than the indifferent many who, in universities as in every other walk of life, always constitute the great majority.

The imparting of certain professional knowledge is, however, by no means the only task of a university. In university teaching the How is of as much importance as the What, and in some essential respects much more important than the How Much. A university which merely turns out efficient professionals has only done one-third of its task. If, besides, a fair percentage of them has been made fit to become good independent scholars, half of its legitimate work has been done, but not more. Only if the whole intellectual and moral constitution of all has received for life the imprint of a true university education, has it accomplished what it must consciously and with set purpose strive for.

The university has not only, in the way of a college, to impart knowledge. It must also teach how additions to the treasury of knowledge are made. The teacher or the student must indeed be poor, never intended for anything but a hackney professional, if, in this part of the instruction, the spark of enthusiasm, which ought to have been struck from the pupil's mind in imparting knowledge, is not made to kindle a flame whose light and warmth will influence his whole life. From week to week the mind's eye ought to be opened wider to the inspiring fact that knowledge is something infinitely higher than a ware and a trade, that it is a *good*, to be hungered and thirsted after for its own sake. And that is but the halfway house. The university or the students have not done their whole duty, if the student does not carry from the halls of the *Alma mater* the full consciousness into life that knowledge, because it is a good, is also a *sacred trust.*

These higher aims are the better attained, the closer the methods of true university teaching are adhered to. Not drill, not training, but educating by guiding—guiding with a constant view to rendering independent, not only in technicalities, but in the first place, and above all, in thinking. Filter as many barrels and tanks full of facts and rules as you like into the student's memory; if you do nothing else, you will only produce new samples of Carlyle's *Professor Dryasdust* or Goethe's *Wagner* in *Faust*—quite useful men in their way, a kind of scientific brick carriers and mortar stirrers. But the university's business is to send forth architects, not, indeed, everyone fit to build palaces and cathedrals, but at least a weather-tight, comfortable, and cheery house, with plenty of light, air, and warmth—a good home for himself and an enviable resort for friends. To guide the student systematically to ever growing independence in thinking, is the only way to make him properly conscious that a grave responsibility attaches to thinking, *i. e.*, that correct thinking is not only intellectually, but also morally a duty toward one's self and toward one's fellow-men. If that were better and more generally understood, the records of vain regrets in the lives of individuals and of nations would be reduced by more than one-half. And nowhere is there more need of it than in this democracy, where everybody is required to do his own thinking, not only for his private affairs, but also for the common affairs of all—in community, State, and nation. Independence in thinking and a lively sense of individual responsibility are the twin pillars on which the dome of democratic liberty rests. Fail to constantly strengthen them, while by the natural course of development the weight of the dome steadily increases, and it will come down with a terrible crash, crushing everything beneath it. Experience, however, teaches that the surest, if not the only way to propagate and invigorate independence in thinking and a lively sense of individual responsibility, is to grant a large measure of liberty. Where this truth is not recognized, in theory and in fact, with regard to university education, the vital principle of the true university is chained down, like the Prometheus of ancient mythology. Grant that by allowing a large measure of liberty—not only as to the What, but also as to the How, When, and How Much—part of the students will lay in a smaller stock of facts, rules, and technical training, than they would have done, if they had studied under the restraints of a system, closely resembling, in leading features, the systems deemed best adapted to the purposes of schools of a higher grade, principally colleges. That is more than compensated by the advantages which only the freedom of true university education can secure. Only this can fan the burning coals of that enthusiasm which is absolutely untainted by any sordid motives into the intensest glow; only this can fully develop the inborn forces, for it alone allows full play in the use of them; only this provides sufficiently for the invaluable lessons taught by stumbling and tripping; only this incites to the development of distinctive intellectual individualities, casting off the dead weight, which to every aspiring mind lies in the consciousness of being molded and pressed into shape according to some pattern cast in the notions of other people; only this systematically fosters the intellectual and moral courage required for striking out into new paths, for it methodically wars against that frame of mind, to which the jogging on in the old ruts seems as well an irreversible as a wise law of nature; this alone pursues with answering steadiness of purpose the ideal, to send forth intellectually fullgrown men and women, and not overgrown boys and girls, for a while more or less shaky and top-heavy under the cargo of wisdom they have had to take in; and, last but not least, this only can produce an adequate number of the kind of missionaries the country stands in need of.

This, in my opinion, is the weightiest among all the reasons requiring strenuous exertions for the speedy establishment of a goodly number of true universities. An ample number of more efficient professionals than the present average is highly desirable; but an ample number of men and women, thoroughly imbued with the spirit which true university education tends to awaken and strives to develop, becomes every year a more urgent necessity. Not as professionals will their greatest services be rendered to the people, but as citizens and fellow-men. The aims they pursue, their manner of pursuing them, the whole view they take of life and its problems, their way of tackling every question, cannot but work as beneficent leaven and good seed, for which a vast expanse of grateful soil is already prepared, from the palace of the merchant prince down to the block house of the pioneer. Ah, indeed, I agree with Mr. Bryce, there is a great reserve of force and patriotism in the American people; but it needs to be put into activity, not spasmodically, but systematically and according to the most approved methods, so as to assert itself with enduring steadiness and persistence in the daily life of the nation in all its relations. And one of the methods most approved by experience is to bring into full play the systematically trained sober second thought and the systematically trained idealism of the nation. To be the nurseries of trained sober second thought and of that genuine idealism which is not the opposite, but the complement of realism, that, however, is the main task of the true university. The universities must be and they will be, the nurseries of what Matthew Arnold calls "the remnant." Therefore you must have them, for although unquestionably there is already a "remnant" in the American people, Arnold very correctly says that everything depends upon the proportion the "remnant" bears to what he calls the "unsound majority." It can never be too large, and, in a democratic republic of such vastness and confronted by such a number of the most perplexing and portentous problems, it must be enormously large to insure the safety of the commonwealth. Sooner or later, it will be found to be not large enough, unless those who now constitute the "remnant" go to work in dead earnest to provide for educating, in the shape of university-taught professionals of every kind, missionaries, who, by their whole way of feeling, thinking, and acting, will, day in and day out, infuse the spirit of the "remnant" into the "unsound majority." If a chasm opens up between the "remnant" and the "unsound majority" and is allowed to widen, nothing can save this country. The "remnant" must not only greatly increase in numbers, while vigorously struggling up to ever higher planes, but it must, at the same time, be unremittingly intent upon filling up the gaps and lifting the majority out of any unsoundness. All these four purposes will be effectually furthered by establishing universities. It would be no easy task to point out a more patriotic and more truly democratic work. Everyone contributing toward it, with his money or with his work, may stand up before the American people in its entirety—remnant, and majority—inseparably bound together for weal and for woe, for better and for worse, and say to it: *tua res agitur*, it is *thy* cause I am contending for.

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EDUCATIONAL EXHIBITS AT WORLD'S FAIRS SINCE 1851,[1] (I)

Nearly all of the objects shown at a World's Fair might be regarded as educational exhibits. It is true that few of them represent actual courses of instruction in which teacher and pupils meet for the systematic study of a given subject. On the contrary, they stand largely for self-education, that gradual process by which the thoughtful worker gains a broad culture from things and from men.

Whewell says that "Education is the process of making individual minds participators in the best attainments of the human mind in general." According to this definition, a World's Fair, showing the progress of civilization in all parts of the world, is not only an exhibit of education, but is itself one of the best of educators. This could be shown by tracing the influence of World's Fairs in the past on the arts and industries, the educational systems and the institutions of the countries represented, but it can only be indicated here as it is beyond the scope of this article, which treats a World's Fair merely as an exhibit of education.

In these days when there are schools for teaching manual training, industrial art, domestic economy, agriculture, engineering, and many other subjects that have a direct bearing on the life work of the masses, educational institutions are coming into close relations with the world about them. They are helping to make success in the various industries dependent on a competition of intellect and a readiness to make use of the latest applications of science to practical affairs. The result is that these schools obtain as pupils' work models, plans, and in many cases actual products that are typical of the work done in the home, the shop, the factory, and the field, and are comparable with the best results obtained in each. When these two classes of work are exhibited side by side the observer can detect no essential difference between them. He finds the same principles applied in a similar manner to produce similar results, and he is thus led to the conclusion that educational institutions merely organize and direct forces that already exist.

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[1] The Great Exhibition of the Art and Industry of All Nations held in London in 1851 was the first gathering that could properly be called a World's Fair. Since that time there have been a great many so-called international exhibitions, of which the following are the most important: Paris, 1855; London, 1862; Paris, 1867; Vienna, 1873; Philadelphia, 1876; Paris, 1878; and Paris, 1889. Several others, notably the one held in St. Martin's Hall, London, 1854, the Health Exhibition, London, 1884, and the World's Industrial Centennial and Cotton Exposition, New Orleans, 1885, although not truly international, have contained important educational exhibits.

Until a comparatively recent time there was no general movement toward making education practical and popular. Now the reverse is true, and the motto of Manual Training schools, "Mente atque manu ad virtutem," is the keynote of educational progress. Some of the important phases of this movement may be traced by a comparative study of the International Exhibitions held since the middle of this century. Each of them has shown many new applications of science to industry and art, and has recorded an encouraging amount of progress in the systematic teaching of the new methods in special schools. The exhibits sent by these schools have helped to found new and to promote the growth of existing institutions, and by giving a sound basis for comparison, have enabled each to avoid many of the mistakes committed by its predecessors.

In 1851 the exhibits from France and other countries showed England that it was far behind its neighbors in the application of art to industry. As a result the South Kensington Museum was founded so as to keep the best examples of industrial art constantly before English workmen and designers. Additions to this permanent international collection were made at each exposition that followed, schools of design were organized with the museum as a center, and a national taste for artistic products was developed. There was a similar advance of industrial art in America as a result of the

Centennial, and the Columbian Exposition will doubtless show that wonderful results have been achieved during the last fifteen years by American schools of design.

Industrial and technical schools also produce tangible results which give, when exhibited, the high-water mark reached by practical education at the time of the exposition. Take, for example, the exhibits of higher technical education at the Centennial. The schools of our own country had strong courses in the theories of engineering and science, but these had to be supplemented by a year of apprenticeship in a factory or elsewhere before they could be really useful. On the other hand, the higher technical schools of Moscow and St. Petersburg were provided with laboratories and shops in which the students could get the necessary practice without any useless repetition. Exhibits from the two countries were sent to Philadelphia, where they were examined by large numbers of people. The Russian system was so clearly superior to our own that President Runkle of the Massachusetts Institute of Technology secured the exhibits, and, using them as a basis, devised the laboratory system which has since been adopted by the leading technical schools of this country. From the same source came a very strong impetus to the manual training movement in America.

These examples lead to the belief that World's Fairs have played an important part in working out the systems now used in the two great fields of practical education—the drawing room and the laboratory.

The earlier World's Fairs contained industrial products that were really the result of work done at the Conservatoire des Arts et Metiers in France, and at similar schools. There were shown also instruments of precision, libraries, museums, and other collections, apparatus for scientific experiment and for illustrating special processes, and many other objects which are important aids to education. These were not placed in the educational section, however, but came under the general head of "Products of art and industry." They were commended by international juries for their cheapness and finish rather than for their importance to science or teaching. In 1867 educational exhibits were given some prominence as a special class, and since then they have become, by a process of segregation, one of the most important features of international exhibitions. There has been a steady growth of the idea that frequent exhibitions of all that relates to education should be held so as to permit everyone interested to profit by the experiments tried in different parts of the world. Before journalism and the facilities for quick communication had developed to their present state, this opportunity for comparative study was especially valuable, and it is still one of the most important forces in shaping the progress of education.

In addition to the immediate influence of exhibits on the people who attend the Exhibition, they produce important results in two other ways:

(1) Through the reports written on each occasion by competent experts from different countries, summarizing not only the contents of the educational section, but also the important features of the systems represented by it. In 1876 when France sent M. F. Buisson to the Centennial to study the American system of primary education, he produced a report based almost entirely upon the exhibits, which was influential in securing his appointment, in 1879, as director of primary instruction in France. Through that report and the exhibits it described, America exerted a direct influence on the course of popular education in several European countries. (2) Through large contributions made to pedagogical museums and libraries. Materials secured from the exhibition at St. Martin's Hall, in 1854, formed a nucleus for the pedagogical section of the South Kensington Museum; collections sent to the Exposition of 1873 founded a pedagogical museum in Vienna; valuable additions were left to the library and museum of the United States Bureau of Education after the Centennial; and the remains of the educational section in 1878 were used to start the Musée Pedagogique in Paris. Our own educational exhibit in the latter year was regarded as so valuable by the different nations that they competed very eagerly for pos-

session of it. The greater part remained in Paris, and the rest was divided between Japan, Italy, and England.

Exhibits sent by schools for the defective classes have always attracted a great deal of attention, and served to spread a knowledge of the best methods in use for teaching the deaf, the dumb, the blind, and the feeble-minded. At each exhibition held since 1867 these schools have been represented, and the United States has shown herself among the foremost nations in caring for this class of unfortunates. In 1885, at the World's Industrial Centennial and Cotton Exposition at New Orleans, there was an exhibit made by the United States schools for deaf mutes, and near by was a member of one of them who "took pleasure in showing its several articles and conversing with deaf mutes, in their own peculiar way."

Having touched upon some of the phases of education that have immediate and tangible results, and can therefore be illustrated readily by a collection of pupils' work and the apparatus used in producing it, it remains to consider the representation of schools in which the results of pupils' work are not of a material sort.

The final product of education exists only in the mind. It may be illustrated by better industrial products, by more useful inventions, by the increased importance of books and works of art among the productions of the people, by better journals, by evidences of a growing interest in public affairs, by a higher standard of living, by a thousand and one results for which education is indirectly responsible. But the direct results of education, the higher intelligence, the mental training, the increased power to control self and the forces of nature, these cannot be shown in a material form. Many of the causes which produce these effects may be traced through an exhibit of the scope and excellence of educational systems in which are shown the appliances provided for instruction, the programmes of study, the various influences which surround the pupil; and the results of these influences may be seen in the work produced by him while he remains a student. This is a mere beginning, but it is valuable because it shows the actual results attained by the methods of education in use at the time an exhibition is held, and supplies a standard by which to measure the efficiency of particular systems.

The force that is most potent in preparing a nation to exercise the rights of self-government intelligently is popular education. Lay broad foundations, by developing the intelligence of the lower classes; give each man a direct influence on the government and thereby a direct interest in it; that is, establish universal education and universal suffrage, and you have made substantial progress toward the ideal government.

Since popular education is of so much importance, it will be a profitable task to trace its history since 1851, as shown by the objects sent to international exhibitions. In 1851 there was no attempt to make an exhibit of this kind. Education, as such, did not form a part of the local fairs held in the Middle Ages, of the national fairs held in later times, nor of the first international exhibition. The Society of Arts gave it no separate place in the official classification. This did not prevent manufacturers from placing among their products such articles as books, pens, paper, models, charts, maps, toys, and many others that are indispensable to the teachers and pupils who take part in the exercises of any well regulated school. When the international jury examined the objects classed as miscellaneous, they also found certain models which were decidedly educational in character, such as an orrery; a box of cubes, bricks, etc., for teaching tangible arithmetic; specimens of levers; a scale-beam and steel-yard; and a sectional model of the working parts of the steam engine. The reports therefore contain the following entry: "The exhibitor of the only educational models which have come under the consideration of the jury, is Professor Edward Cowper, of Kensington Park Villas, to whom a prize medal is awarded." The school of design in London also received a prize medal, and certain of its pupils were given honorable mention.

The first true educational exhibit in England was held at St. Martin's Hall, London, during July and August, 1854. It was under the auspices of the Society of Arts, and was approved heartily by the Prince Consort. To bring together a collection of the materials employed in teaching and of the visible results of instruction in various countries, was the object of this exhibition, and considering the novelty of the plan it was very successful. There was, however, no attempt to show illustrations or models of school buildings or of school furniture and fittings. In spite of the desire to make this exhibition as international as possible, foreign countries were not very fully represented. The schools of Great Britain sent exhibits of methods, appliances, and works which were of great value in studying the English system, and these, together with the greater part of the foreign exhibits, were purchased by the government and placed in the newly founded South Kensington Museum, as the nucleus of a permanent pedagogical collection. The teachers gathered together at this time not only had an opportunity to compare the appliances and materials used in different countries, but they met in conferences to compare ideas, to discuss methods, and to draw from conversation and lectures the richest results of the experience of those among them whose fields of work were far distant, and who had come from India and all parts of the continent to contribute their share to this first international congress of educators. The seeds thus planted have borne rich fruits in the conferences of all sorts held in connection with more recent international exhibitions.

Although the French educators took part in the gatherings at St. Martin's Hall, and were therefore well aware of the possibilities of an international exhibit of materials and methods of education, they accomplished very little in that department at the Paris Exhibition in 1855. The classification enumerates the various materials for teaching the sciences, letters, and liberal arts, and even has a special section for materials for elementary instruction, but the exhibits in the latter were too meager to deserve notice here. The materials for higher grades of instruction were more fully shown, but, as in 1851, only as articles of commercial or industrial value.

In 1862 the idea of making a complete exhibit of educational methods and materials at an international exhibition of industry and art appears for the first time. With the exception of a comparatively small number of foreigners, who were present in 1854, there were very few people outside of England who realized the advantages to be gained from the exhibition of such a collection.

In the jury reports for the Exhibition of 1862, occurs the following statement: "The great utility of an educational collection consists in the opportunities it affords for comparison, and the classification most to be desired in such a collection is not a geographical one, but one of objects. If all the appliances intended to illustrate the teaching of any given subject were to be brought together from various countries; if, for example, the person specially interested in the teaching of arithmetic could find in one compartment all the text-books on the theory and practice of the science, all the tabular lessons, the counting frames, the visible illustrations of fractions and of notation, the weights and measures, and the latest and best devices for facilitating counting, for suggesting new forms of oral exercises, or for throwing light on the principles of numbers; and if all these objects were arranged solely with reference to the truth to be taught, the value of an educational exhibition to teachers would be incalculable." This is the ideal which educators have kept constantly in view in preparing their exhibits. Few could have opportunities for world-wide travel; few possess the necessary linguistic abilities to make the most of such opportunities, if they had them; few could have obtained the *entrée* necessary for a thorough investigation of school systems in foreign countries, or could have afforded the great outlay of time and money required for such an investigation. Without these international exhibitions the majority of educators would therefore be unable to make a comparative study of educational systems. It has been of the greatest value to them that in the last thirty years there have been a series of exhibitions which have brought together the educational methods, materials, and works from all parts of the world, and that each has more nearly reached the ideal arrangement, viz., the one that brings all systems together and places them side by side in a single building. Exhibits which really represent everything of value to educators may be so grouped as to speak for themselves to a great extent, but when interpreted by able and enthusiastic teachers, as they have been in some of the later exhibitions, they become doubly valuable.

In 1861 the National Committee of Advice prepared an elaborate classification with the hope that it would be used as a basis for the arrangement of an international court of education; it was a noble conception, but the time had not yet come when it could be realized. It had to be modified for two reasons:

First, each of the foreign countries desired to keep its educational exhibit in its own special court.

Secondly, the space offered to the Commissioners for education was equal to only one-fifteenth of the space asked for by British educators alone. The result was that although there were 619 exhibitors, representing 18 different countries, their exhibits had to be distributed through the buildings which covered 24½ acres, and they were therefore quite inaccessible for critical examination as a whole.

In 1867 the French commissioners followed the example set by England in 1862 and assigned to education a prominent place in the classification. They made two mistakes, however, that prevented the exhibits sent from accomplishing the results hoped for:

(1) Instead of recognizing popular education as an indivisible whole, they divided the objects representing it into two classes: (a) material and methods for the teaching of children; and (b) libraries and materials for instruction of adults in the family, the workshop, the commercial and corporation schools. This resulted in a great deal of confusion between the juries of admission and also the juries of awards for these two classes.

(2) The educational exhibits were distributed over a large area. They appeared in the galleries for liberal arts, for

machinery, for fine arts, for food, for raw materials, and also in the Park. As a result, no system was symmetrically represented, the juries and other persons interested could not form a just estimate of the comparative value of the exhibits that were made, and even the official reports, that should stand as a permanent record of all that the educational classes contained, were incomplete.

Since 1867 there has been a growth toward the ideal arrangement, and it is probable that in 1893 exhibits of all the important types of educational institutions, excepting schools of agriculture, will be grouped in a single building. Even then, the exhibits from several of the largest States—notably Illinois and California—and from many foreign countries and special institutions must be placed elsewhere.

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To be concluded

III

RELATIONS OF LITERATURE AND PHILOLOGY

It is apparent from various statements finding place in print that the relations of literary and philological study are somewhat strained. Now and again it is evident that, in the minds of some, a real conflict exists between these two. Moreover there are professed adherents of the one and supporters of the other, who get ranged on opposite sides and occasionally come to pitched battles in the war of words. The positions taken in these combats are various. Some claim that philology has no right to exist at all, the reason being that it is "dead," it deals only with "the past," it has no "practical" value. Others assert that philology has usurped the place literature should have in the schools, and that its usurpation has not only deposed literature, but has driven it to a "degrading vassalage." Still others impute to philology other baleful influences. It has not "produced" any powerful writer, no "men who have become intellectual forces," while of course all make the usual Biblical allusion to "dry bones" and the stale metaphorical reference to "roots." To these must be added the curses not loud but deep, that never get into print although they may occur with periodical frequency. On the other hand the philologist has been known to assert that it is impossible to teach the "intangible," or to examine in matters of "taste," and therefore taste is not a fit subject for college and university instruction. We are told that the "Germans"—who are always a red rag to some people in educational circles—speak with great disparagement of *Belletristen*, and that even in other countries "one finds at every turn invectives" against literature and literary teaching.

But the writer wishes to be fair to both parties, or rather to lay aside the polemical attitude entirely, recognizing neither party. And yet it is fair to point out that the attacks come more largely from the adherents of literature than from the other side. For it is no uncommon thing that the philologist professes to find his greatest pleasure in the study of literature, and some do not hesitate to express a preference for teaching literature rather than language. But it is certainly rare, if not somewhat unprecedented, that the teacher of literature professes a real enjoyment of philology. He is somewhat more likely to say, if he refers to philology at all except in an invective, ''Oh, yes, philology may be a very good thing for certain minds," or philology "in its highest departments" is ''of immense interest and value," which implies somewhat strongly that in its lowest departments philology is by no means so valuable or so charming.

This attitude of literature toward philology may be accounted for by the fact that the scientific study of language is steadily gaining a place for itself in our institutions of learning. And yet the gains of philology are by no means so great as might be supposed from some things said. For example, a writer in the *Critic* of May 5, 1888, says: ''In this country and in England, up to the present time, the study of English Literature has been steadily subordinated to the study of philology. . . So far as I know there is not a higher institution of learning in the United States which has a department of literature." Yale having been mentioned in this connection, Professor Beers answered in a following number of the same periodical, that not only were both statements wholly untrue of Yale, but the "crying need" of the college was more of the "scientific study of English." It might also have been pointed out that in half a dozen "higher institutions" of this country departments of literature do exist, while, in the majority of smaller colleges, the method of teaching literature can in no sense be said to be "steadily subordinated to the study of philology," although it may be severely criticised in other respects. This latter fact may be strongly emphasized. For, while in some of the many smaller colleges over the land a little Anglo-Saxon is studied, in no true sense can it be said that English philology holds a conspicuous place.

Nor is the writer in the *Critic* more fortunate in his statement with respect to England. He says prophetically, "American universities, however, will not be the first to establish professorships of literature. The matter has advanced further in England than it has here. . . Long after English universities are teaching literature, American universities will be teaching philology." Something has been said of the actual teaching of literature in this country. Let us see how it is in England. By English universities we usually mean Oxford and Cambridge; at least we place them first. Yet neither of these has a professor of literature, although some lectures on poetry are given each year at Oxford, and Professor Skeat of Cambridge has produced some books of great service to literary study. The three men holding professorships of English at Oxford and Cambridge are pre-eminently linguists. Moreover it is only some five years since the advocates of literary study desired to fill a vacancy at Oxford with a professor of literature, but were defeated, after much discussion on the part of eminent men, by the supporters of the teaching of language. Still more, the one professor of literature in the British Empire, with whom no professor in a similar line at any English university may be compared, is Edward Dowden at the Irish University of Dublin.

Mistakes such as these ought to make any disputant cautious. Yet such mistakes are not uncommonly made by the adherents of literary study, or better the opponents of philology. For instance this same writer in the *Critic*, when speaking of the philological method applied to literature, has this remarkable characterization of modern languages: "The method employed, a long and exacting course in the crudest periods of language—*language-forms which had not even a grammatical structure, until it was made to order for them by modern grammarians.*" Apparently, in the conception of this individual, there was a time when the speakers of Greek or Latin assembled and formally adopted a "grammatical structure," so that it did not need to be "made to order" for them. This remarkable conception deserves to be placed in a virtuoso's collection, not for its gross ignorance, but for the gross conceit of one who attempts to discuss a subject without the most rudimentary ideas of that which he opposes.

And yet this is not a casual mistake, an inadvertency perhaps of one who opposes the scientific study of language. It is a mistake that many such opponents do not blush to make. A most active supporter of literature as a study is Mr. J. Churton Collins, who has written several articles for English reviews, and has recently published these and other essays in book form.[1] In one of the chapters occurs this sentence: "Literature on the side of art, history, and æsthetic is wholly ignored, and . . . the study of our classics is saddled and encumbered by a lumbering and repulsive apparatus of Gothic, Mœsogothic, Icelandic, and Old Saxon." Again, it may be claimed that to write "Gothic, Mœsogothic" as if they were two distinct languages may be only a slip, and this may extenuate what is otherwise gross ignorance; yet I believe Mr. Collins would be the last to pass over lightly such a "slip" by an opponent of literature. He was not chary in dealing with Mr. Edmund Gosse some years ago, when the latter was guilty of considerable blunders in his Cambridge lectures. In another chapter Bentley is cited as a typical philologist, and with absolute assurance on the subject he is treating Mr. Collins sums up the claims of philology in this way: "The mind it neither enlarges, stimulates, nor refines. On the contrary it too often induces or confirms that peculiar woodenness and opacity, that singular coarseness of feeling and purblindness of moral and intellectual vision, which has in all ages been characteristic of mere philologists." It is perhaps reasonable to say that Mr. Collins apologizes in his preface for a slight "polemical attitude" in his book; otherwise might be pleaded the ordinary excuse for this nonsense, that anyone may poke fun at philology.

Similar examples might be multiplied. In the *Century* of

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[1] *The Study of English Literature.* New York: Macmillan & Co., 1891.

January, 1891, appeared an "open letter" which particularly exemplifies a common misunderstanding of the very nature of philology and of its aims. We are told that "In the United States there is not, I believe, a single powerful writer who knows anything about philology—or, to put it better, there is not a single philologian who is a powerful writer." And again, "It [philology] has already ceased to have any real influence upon the opinions of mankind. . . It has now fallen into the hands of men who have desires of their own, apart from the intellectual needs or desires of the world at large." Here is a doleful picture of this subject that has "fallen into the hands of men who have desires of their own"; yet is there not a little inconsistency in the mournful attitude because a subject of so little real value has got into the hands of such base men? According to this writer also philology, among other evils, is an ungrateful child—"how sharper than a serpent's tooth"! "It is a curious fact," we are told, "that modern philology, which rejects as unscientific everything savoring of *belles-lettres*, owes its own original impulse to literature, and not to its own inherent force."

But notwithstanding these adverse criticisms, indeed in spite of them, the scientific study of English, as of language in general, has gained ground both in England and America. That this new impulse has met with favor is due both to the subject itself and to the temper of the age. The new science appeals to students because of its exactness, the wide range of unexplored territory, and the necessity of the historical method in language study. Moreover, the age is one of scientific investigation, and with its spirit and aims philological study is in perfect harmony.

It may seem that this extended discussion has not the closest connection with the relations of literature and philology. And yet just this was necessary to show the absurdity of the controversial spirit with which the subject has been too often approached. Unquestionably this spirit has been a hindrance rather than a help to the consideration of either line of study, while it has tended to establish the idea that there is a necessary antagonism between the two subjects. That no such antagonism does exist in the subjects themselves, it ought not to be difficult to prove. Let me lay down some fundamental principles. In philology we are dealing with the phenomena of language as a science; in literature we are dealing with one of the fine arts. In the one the methods of exact science are employed; in the other æsthetic criticism. The one discusses language with reference to its phonetic, inflectional, and syntactical systems; the other deals with language solely as a medium of thought considered as it gives pleasure to the higher faculties of mind and heart. The aim of the one is to understand the natural in expression, its origin and development; the aim of the other is to appreciate the beautiful and the good.

It ought not to be difficult to differentiate two such diverse subjects. Nor would there be any conflict between them but for two considerations that cannot be overlooked. The first of these is that both classes of students use the same material. The philologist claims Chaucer and Shakspere as does the literary critic. It is true there need be no antagonism notwithstanding this fact, for the philologist makes no exclusive claim to Chaucer. To him, for a different period, the Ormulum is as important as Chaucer for his time, and the literary student would be the last to deny the Ormulum even to the philologist. Nor is the claim of the philologist unjust. Indeed literature owes him a debt on this very account. It was not until philology took up the study of Chaucer's language, that the full brightness of that morning star of English poetry was appreciated. The fifteenth, sixteenth, seventeenth, and a good share of the eighteenth centuries acknowledged Chaucer's greatness in some respects, but all felt it necessary to apologize for his "rude verse." Chaucer was "incorrect" and "unpolished," until a philological examination showed the perfection of his verse and disproved the slander of centuries. Moreover, no one can attempt to read Chaucer in his own tongue, or pronounce him as he was pronounced by his contemporaries, until the philologist lays down the body of rules. All textual emendations, also, as well as all elucidations that depend on a critical knowledge of the language, must first be scrutinized by the philologist, if they do not originate with him. The puns and quibbles of Shakspere are often ridiculous, until the study of his pronunciation shows that no single one was not a real witticism. Even so late a writer as Pope requires this same study to justify the "correctness" of many of his rhymes. Above all, the most certain tests of genuineness for an author's works, as well as of the times at which they were written, rest on philological grounds, and the application of these must remain with the specialist. By such tests the genuine works of Chaucer have been separated with great certainty from no inconsiderable number attributed to him, while the plays of Shakspere have also been set in fairly accurate chronological order, a fact of no little value to the student of literature.

The remaining reason why there is a conflict between the two subjects is that the philologist, by the rise of the new science of language, has apparently usurped the place of the teacher of literature. Unquestionably this ought not to be so. Our own literature is one of the most important subjects in the curriculum, and it would be fortunate indeed if there were someone to insist on teaching it with the force that the German Emperor has lately given to the teaching of German in his own country. Nor should we give up philological study. What, then, is the remedy? The answer ought not to be far to seek. Let the two subjects be properly differentiated, each study resting on a separate foundation. Let each be given its fair share of time, with every encouragement that can be afforded by a proper understanding of the claims of each, and with the removal of the jealous attitude each holds toward the other. Such differentiation has already begun in some of our American universities, and this alone will solve the increasingly important problem.

But whether we grant that the differentiation mentioned solves the problem or not, it may be proper to consider the scope and aims of each line of work. What, then, is the function of a school of literature? And here on the threshold we are met by the objection of those who say literature cannot be taught. It is true this question is not usually raised in this country; indeed all such questions are usually ignored by the silent acquiescence in appointing to chairs of English literature persons whose only qualification is that they can talk pleasantly about the novels of the day, or have perhaps written an article or two for a popular magazine. But in England this question has been seriously discussed—such a man as Edward A. Freeman taking the negative. A similar opinion has also prevented the establishment of a chair of literature at Oxford in recent years, and no such chair exists at Cambridge. The upholders of this view take the position that literature is one of the fine arts, and that æsthetic criticism has not been, or cannot be, systematized. There is something to be said for this view. The history of literary criticism, at least by contemporaries, is the history of repeated failures. The contemporary estimate of Pope, Wordsworth, Byron, Shelley, Southey, Keats, Moore, not to speak of later poets, or a host of minor ones overestimated in their own time, are instances in point. This must be, as long as there are no absolute criteria of literary greatness—in other words, as long as it is impossible to state with any completeness the principles of the æsthetics of literature. As long as this is so, æsthetic criticism is not in itself a subject for university instruction. In the hands of a master it will always be suggestive, inspiring, valuable. But it will be this in spite of its formless character, while in the hands of any other than a master it will be mere shoddy and dilettantism.

If this were all of literature, therefore, one might easily despair of its place in a college or university. But there are phases of literature that may be taught. It is possible so to plan the work, that one cannot find fault with it as a subject of instruction. To understand how this may be done let us take the best that is said by the supporters of literary study. Mr. J. Churton Collins has this to say: "In legislating for the teaching of English literature . . . we have obviously to bear two things in mind—the necessity for an adequate treatment of it from an historical point of view, and the necessity for an adequate treatment of it from a critical point of view." Evidently this does present phases of literature that may be studied and taught. The "historical point of view" would require the study of an author, as an outcome of preceding ideas and conditions, in his relation to his time and to the stream of literary history. Under "a critical point of view" the same writer proposes "verbal analysis, analysis of form and style, analysis of sentiment, ethic, and thought"; and here again we have one or two subjects at least that lend themselves to the most exact treatment, as verbal analysis and the analysis of form and style. To a common criticism that verbal analysis does not belong to the study of literature, Edward Dowden, certainly an unprejudiced judge, opposes the following emphatic statement: "Some persons seem to fear that a close attention to textual difficulties, conjectural emendations, obsolete words, allusions to manners and customs, and such like will quench an interest in the higher meanings of the play. I have not found it so."

In the same article Professor Dowden, the best exponent of literary criticism at present, outlines his plan for the teaching of English literature. First, selecting some great work of a great author, he would "approach the piece from every side," study it, that is, in its language, form, style, and thought. Next should be considered the author's work as a whole; and thirdly, the literature of the period as part of a great movement, the movement of the age. Lastly should come the philosophic and comparative study of literature. To sum up, there are at least three lines of literary study, against which no objections of indefiniteness can possibly be urged. They are:

1. The study of an author's language. This is placed first because it is an essential in all our older authors, and to some extent even in the most modern, though it is by no means of prime importance except as a factor in literary study. This portion of the study necessarily rests on philology.

2. The historical study of literature. This part of the study deals with history and biography. But it is by no means necessary herein to obtrude the skeleton of dates and events, since it is rather the age's "outward body and inward spirit" that should be sought. Moreover, as history becomes philosophic by special attention to causes and effects, so literary history may study the causes of growth and decay, and examine the reasons for those flood tides that come upon the seas of national thought.

3. The comparative study of literature. This is a study of origins and influences, of one nation in its effect upon another, of classicism, romanticism, realism as they appear in different countries. In this department literature is studied as both national and international.

To these should be added a fourth division, the criticism of literature as one of the fine arts; but, as pointed out, this is as yet unsystematic and formless. Few attempts have been made to get at the principles upon which æsthetic criticism rests, and for this reason more than any other, discredit has been thrown upon literary teaching itself. In reality, however, here is a most important field to be occupied in the future.

It remains to say something of the sphere of philology, and especially the philology that relates to the English tongue. That there is a great future for a science so young and vigorous no one having the slightest acquaintance with the subject can doubt. Indeed the science is but entering upon the possession of a vast field of knowledge, the results of which must be of immense value in explaining the nature and growth of language. Some idea of the breadth of the science may be gained by considering its relations to other spheres of knowledge. Philology, in its study of languages as they relate to races, is an important factor in the science of ethnology. As an interpreter of historical records, it is the helpmeet of history. As assisting in the elucidation of textual difficulties, it is the handmaid of literature. In its consideration of origins in language, the virgin field of sematology, or the science of meanings in words, and those changes in the forms of speech depending on the subtler psychological influences, it leans upon philosophy. Moreover, the methods employed in philology are now without question those of the exactest science. In no science is the comparative method more strictly used, for at the present day all proper philological teaching rests on a comparative basis. It is no longer possible to teach the philology of a single tongue, much less a tongue like the English with its diverse parts, by any other than the comparative method. Finally, the science is in that stage which gives the greatest opportunity for inductive research, and hence perhaps the greatest educational value.

It is for a science with such scope, therefore, that a proper differentiation from literature is asked, and a proper recognition of its importance. This will leave literature free, while it will also prevent misconceptions as to the true aim of philology itself. The same differentiation ought to be made in the study of any language, especially so in the classics. There can be little question that the teachers of the classics are much to blame for the attitude taken by the opponents of their line of study to-day. One of the commonest arguments for classical study is that the classics are culture studies. And yet a very large part of the teaching of the classics in America at the present time is purely philological, and the philological study of the classics has almost as slight bearing upon the humanities as the philological study of Gothic. The classical ideal remains the same as it was a hundred years ago, but classical teaching has been revolutionized.

It was said that the philology of a single tongue is not now taught separately, but comparatively. English philology can be taught rightly only as a part of Germanic philology. This is recognized more fully by the German universities, where, for example, English is taught by the professor of the larger subject. This may suggest a commendable plan to English and American universities; for it would clearly be a saving of labor if Germanic philology were considered as a whole, the several languages being taught in their relation to the larger subject on the one hand, and to the individual languages, German and English especially, on the other. This would be gladly approved by the supporters of literature, who would thus see even a completer separation of the two subjects, while it would make possible more scholarly and original work in the philological field.

In conclusion it may be said that the proposition for a complete separation of two such diverse subjects is not only necessary for their fullest progress, but it is also in accordance with the specializing tendency of the age. That tendency has already affected nearly every subject from the sciences to philosophy. Strangely enough literature and language have been seldom subjected to this important differentiation. It is so equally with ancient and modern languages. And yet it may be safely predicted that such differentiation must surely come, and when it does come there will be done away, it may be hoped, the jealousy, the supposed antagonism, and the misconceived criticism that have so slight reason for existence.

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IV

ELECTIVES IN THE HIGH SCHOOL

AN EXPERIMENT

In February, 1886, the school board of the city of Newton, Mass., voted to reconstruct the courses of study in the high school. The courses leading to the colleges and scientific schools were made to accord with the requirements for admission to those institutions, and need no further mention in this paper. But the general course, which is usually followed by those who end their school life at the high school, received, as I am told, an extraordinary degree of consideration from the committee to whom the subject had been intrusted. This committee consisted of the superintendent of schools, the former head-master of the high school, and the secretary of the State board of education, men distinguished for sound learning and wide experience.

The demand for a new course of study, constructed upon broader and more generous principles, had become quite urgent, and had taken the form of petitions from pupils and parents, who often protested against the requirements in algebra and geometry, and urged that boys and girls should have the privilege of pursuing special courses of study adapted to individual needs and aptitudes. The number of students admitted to special courses in response to these requests became at last so large as seriously to embarrass those who were charged with the responsibility of administering the affairs of the school.

It was about this time that President Eliot devised a new plan of work for the Chelsea high school, and without a doubt the discussions that were rife at that time had their influence upon the committee as well as upon the community.

The problem assigned the committee was found to be a difficult one, inasmuch as its solution involved a wise selection of correct principles, and a judicious application of them. They divided the subjects of study into three classes: prescribed studies, alternative studies, and electives. The prescribed studies, that is, the studies required of every pupil, were English, history, and the elements of physics and chemistry. These seem to have been regarded as fundamental and altogether essential for the attainment of that high mental and moral excellence that characterizes the good man and the intelligent citizen.

It is quite clear that the authors of this curriculum were transcendentalists. Literature must have been placed first upon the list because it has to do with what Professor Royce calls the inner life, refining the feelings, and bringing the mind to the contemplation of subjects that are profoundly ethical and philosophical; while science, on the other hand, concerns the outer life and interprets the child's experiences as he deals with things and forces. History, moreover, touches life on both sides, unfolding to the student both the development of the spiritual life of the race and its progress in material things. The rise and growth of ideas and the institutions that embody those ideas can be understood and appreciated only through the study of history and literature. The citizen that is learned in these is the natural conservator of that which we regard as most precious in our civilization. Those who know the cost of "liberty and union" are the ones who most freely sacrifice to maintain them. Thus English, history, and science are the groundwork of our curriculum. Equip a young man with the training, knowledge, and culture to be derived from such a course as this, and add to this acquirement the power to express his thought with ease and accuracy by tongue and pen, and who will say that he is not well prepared for the duties of citizenship? Upon some such theory as this, it seems to me, the committee must have framed this programme of studies.

The required course in English and history comprises an exercise every day for four years. This is supplemented by scientific subjects which, excepting the elements of physics and chemistry for which no substitute is offered, are arranged as alternatives. Every pupil must have four exercises a week in one or the other of these alternatives, which come in the following order:

ALTERNATIVE STUDIES

<table>
<tr><th></th><th>FIRST YEAR</th><th>SECOND YEAR</th><th>THIRD YEAR</th><th>FOURTH YEAR</th></tr>
<tr><td rowspan="2">First half year</td><td rowspan="2">Physics</td><td rowspan="2">Physics or Botany</td><td rowspan="2">Chemistry or Mineralogy</td><td>Psychology or Physical Geography</td></tr>
<tr><td rowspan="2">Ethics or Physiology</td></tr>
<tr><td rowspan="2">Second half year</td><td rowspan="2">Botany or Zoölogy</td><td rowspan="2">Chemistry</td><td rowspan="2">Geology or Economics</td></tr>
<tr><td>Logic or Astronomy</td></tr>
</table>

The decision of the committee by which the sciences were made prominent, and, in a modified sense, compulsory, needs no defense and no explanation to a generation whose life has been transformed by the application of scientific discoveries.

Keeping in mind the fact that nine exercises a week, five in English and history and four in science, are required from every pupil, we will now consider the subject of elective studies.

The list is as follows:

FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR
Latin..............(5)	Latin..............(5)	Latin..............(5)	Latin..............(5)
Algebra............(5)	Plane Geometry....(3)	Solid Geometry....(3)	Trigonometry.....(3)
Drawing..........(3)	French............(3)	French............(3)	French............(3)
Bookkeeping......(3)	Drawing...........(3)	German............(3)	German............(3)
		Drawing.... ......(3)	Drawing..........(3)

A word at this point about the method of administering this system of electives. A rule of the school board requires every pupil to have, at least, twelve exercises per week, exclusive of elocution, calisthenics, and military drill. Thus each pupil must have one elective, and may take as many more as he pleases. There is, however, a noteworthy absence of any attempt to compel a student to continue the study of an elective subject that he has once begun. The only restriction placed upon him is that he must retain the one elective needed to make up the minimum requirement of twelve exercises a week.

This curriculum, slightly modified from time to time and administered, as has been shown, in a very liberal manner, has been in operation since September, 1886. I have accordingly tabulated complete statistics for the classes entering the school in 1886, 1887, 1888; and partial statistics for classes admitted in 1889, 1890, 1891. This table is compiled from the record of 533 pupils, and has been arranged to answer the six following questions:

1. What proportion of each class has taken only the minimum requirement of twelve exercises per week?

2. What has been the average number of exercises per week for a pupil?

SUMMARY OF STATISTICS FOR	Per cent. electing Latin	Per cent. electing French	Per cent. electing German	Per cent. electing Drawing	Per cent. electing Algebra	Per cent. electing Bookkeeping	Per cent. electing Plane Geometry	Per cent. of those attending not less than two years, who studied a foreign language two years	Per cent. of those attending not less than two years, who elected neither a foreign language nor mathematics	Average number of exercises per week to a pupil	Per cent. taking only twelve exercises a week
First Year	39	..	..	47	30	36	..	..	..	15.51	19
Second Year	26	76	..	46	..	..	23	..	..	14.87	27
Junior Year	14	75	29	39	..	..	..	..	..	14.55	31
Senior Year	6	75	18	31	..	..	..	..	..	13.50	45
										Av'g	Av'g
								83.8	4.5	14.62	30.5

It will be observed that solid geometry and trigonometry, which are elective studies, do not appear in the table. A small number each year have expressed a wish to study these subjects, but have been prevented by a rule of the school board which provides that a class in an elective subject of the junior year must have not less than fifteen pupils; in the senior year, not less than ten. This rule seems necessary to protect the school against the waste of time and money incident to the formation of small classes.

The relative popularity of French and German should not be estimated by the figures in the tables. The disparity is accounted for, in part at least, by the fact that French has been offered a year earlier than German, a mistake which is now corrected.

3. To what degree have the subjects chosen been adhered to?

4. To what extent has each subject been elected?

5. What proportion of those attending not less than two years studied a foreign language two years?

6. What per cent. of those attending not less than two years elected neither a foreign language nor mathematics?

So far as can be shown by figures we have in the accompanying table the results that have followed the adoption of a course of study that grants to high school boys and girls and their parents an unusual degree of liberty in electing or rejecting a large number of linguistic and mathematical studies, some of which were regarded, by the last generation at least, as the *sine qua non* of a liberal education.

What do these statistics signify? To aid in answering this important question I venture to offer some explanations and comments, following the order of the six questions that have already been propounded.

The percentage of pupils (30.5) that are satisfied with the minimum requirements of twelve exercises per week is not larger than we should naturally expect. It embraces not a small number of those whose physical disabilities or mental limitations would debar them from pursuing a prescribed course of study such as would command, on theoretical grounds, the approval of professional teachers and superintendents. There are also some of this number who supplement their school work by the study of art or music under private instruction; and there are others whose parents can ill afford to continue them in the school if, by their labor out of school, they do not contribute something toward the maintenance of themselves or the family. It should be known, furthermore, that these pupils, as well as others, have also two exercises a week in calisthenics or military drill through the entire four years, and that an additional hour in every week during the last two years is set apart for elocution and declamation.

The answer to the second question, on the whole, is encouraging. That pupils in the general course, without any pressure from the authority of the school, and in addition to the time devoted to physical training and vocal culture, should take upon themselves an average of 14.6 exercises a week shows not only that they have a fair degree of ambition, but also that they have some appreciation of the value of their privileges.

There is, to be sure, some falling off between the first and fourth years in the average number of recitations per week, as well as in the number of those who elect more than twelve exercises per week. This is indeed to be deplored. The scholar's growth in mental power ought to keep pace with the difficulties of his work, and the senior ought to undertake as many exercises a week as a freshman. But this apparent relaxation of effort toward the end of the course is not, I believe, to be charged solely to the elective system. It likewise characterizes schools in which electives are little known. The chief causes are the near approach of the time when school life ends and adult life begins, and the distracting effects of social allurements. The demoralizing influence of the latter cause is very great in the senior year, and is a constant menace to the prosperity and efficiency of the school.

The answer to the third question is thought to be important in this inquiry, for the reason that a pupil can discontinue an elective study at any time, provided he can obtain the written consent of his parent or guardian. The facts upon this point, as they appear in the table, are quite clear. French and drawing almost hold their own from year to year, while German drops from 29 per cent. to 18 per cent., and Latin from 39 per cent. to 6 per cent.

But a complete response to the third question is not furnished by the table of statistics. The per cent. electing each study includes only those who pursued the subject not less than half a year. All who began a study and dropped it before mid-year were held not to have elected it.

When the table was complete it seemed desirable to ascertain to what extent each elective subject had been attempted and abandoned before the middle of the year. The results of this investigation are these: Latin has been pursued less than half a year by 5 per cent.; algebra, 5 per cent.; French, 5 per cent.; German, 9 per cent.; drawing, 2 per cent.; plane geometry, 3 per cent.; bookkeeping, 5 per cent. In any endeavor to estimate the total amount accomplished under this scheme of study we must not forget these helpful efforts of a faltering ambition.

The fourth, fifth, and sixth questions represent different phases of the same subject, and may as well be considered in a group. A glance at the table shows that the most difficult studies are not the most attractive ones. Latin and mathematics meet the favor of the few, while French and drawing allure the many. This fact at first sight is not wholly reassuring. Many of us have been taught to believe that no study can fill the place of Latin in a liberal education. And, too, there is a somewhat prevalent belief that the cultivation and development of the mathematical faculty, or the power to reason by "successive intuitions," is highy important in training young men and women to grapple successfully with the problems and difficulties of actual life. Shall we then place Latin, algebra, and geometry among the required studies? If we do, we encounter at once a very serious difficulty. There are many boys and girls that knock for admission at the door of the high school, who either cannot or do not succeed in the study of Latin; and there are others whose work in algebra and geometry can never be of such a character as to command the approval of a conscientious instructor. If, therefore, we compel all to study Latin and mathematics, one of these results must follow: either we must refuse admission to a large number of youth who most need the help of the school; or, having admitted them, we shall make their school life so unhappy and unprofitable as to force them to leave the school; or we shall embarrass the class by trying to carry pupils whose ability is clearly inadequate to the task imposed. In other words, if Latin and mathematics be required this class of pupils must be kept out of the school; or, if once admitted, must be driven out; or, if allowed to remain, must be carried as a dead weight.

It was the desire of the committee that framed this curriculum to extend the advantages of the high school to as many persons as possible, both because it is a free public school supported by taxation, and because they believed that in this way only the school would accomplish the greatest good.

Able but unambitious boys and girls, it is true, too often take advantage of a rule designed to benefit their less gifted classmates. The parents of such pupils are, perchance, not well informed respecting courses of study, or they are too indulgent. As a consequence those studies that demand more time and effort, and accordingly have more power to discipline the mind, are avoided by those who are bent upon following those lines of study that offer the least resistance.

Our main question, therefore, recurs with an alternative. Shall we bar the gate against those who cannot master Latin and mathematics or shall we permit a small per cent. of capable youths to elect the easy subjects, and thereby fail to acquire that fullness of training and learning that they might obtain under a plan of study more exacting? If we prescribe Latin and mathematics we fall upon the wrecking rocks of Scylla; if we offer them as electives we are engulfed in the whirlpools of Charybdis. But if, "rising upon our oars," we escape both Scylla and Charybdis we may admit to "partial courses" of study those pupils "who, from ill health or for other reasons, are unable to pursue in full the regular curriculum," and then perchance find ourselves upon the shore of the Cyclops, near the thundering Etna. For we have little assurance that pupils and parents would be wiser in selecting "partial courses" of study than in electing subjects of study.

But in the last analysis the question is much broader than that which concerns merely Latin and mathematics. It involves also the validity of the original claims in respect to the relative importance of the required and alternative subjects, English, history, and science. Suppose we arrange our high school studies in three groups: English, history, and science composing the first; Latin and mathematics the second; German, French, and drawing the third. It is quite clear that the youth of average talent ought not to undertake more than two of these groups in a four years' course. If, therefore, the first group is prescribed, either the second or third group, or an equivalent, is prohibited. We must then contest the arguments upon which the required studies rest, and lessen the amount of time devoted to those subjects, which is now about two-thirds; or we must expect that many will choose the third group in place of the second, since they cannot take both.

It is confidently believed that the position of Latin and algebra in the Newton high school would be greatly strengthened if the number of exercises per week in these subjects were reduced from five to three. The embarrassment incident to the present arrangement is obvious when we notice that those who elect both Latin and algebra in the first year must assume the extraordinary task of nineteen exercises per week. Three-eighths of those who began Latin this year are doing this very thing, and the average number of recitations per week for the whole number is 17.7. The complication is even greater as the course advances. The pupil that tries to carry Latin through the second year must either take upon himself more than fifteen exercises a week or reject geometry, French, German, and drawing; for, if one of these electives be added to Latin, the number of his lessons for the week is seventeen. That pupils are anxious to continue the study of Latin is evinced by the fact that the average number of recitations per week for those who are pursuing the study of Latin in the second year is 18.2. Is it any wonder, then, that we fail when we attempt to counterpoise a single language (Latin) with French and geometry, or German and drawing, or French and German, or any other combination of these four studies? It appears that there was a reluctance on the part of those who constructed this curriculum to make a difference between the classical and general courses, either in the quantity of work required in Latin and algebra or in the methods of instruction in these two branches of study. In other words, the college preparatory course of the school, to this extent, seems to have dominated the general course.

If this curriculum could be amended in the way suggested, there would be no reason to doubt that the number electing Latin, algebra, and geometry would be materially increased, and that a much larger proportion would be induced to continue the study of Latin through the four years. It is thought, too, that the efficiency of this department of the school might be enhanced, if means were taken to impel a larger number in the two upper classes to elect more than the minimum requirement of twelve exercises a week.

But whether this programme of studies, even then, would be more advantageous than the one which is more restrictive in its electives, and more imperative in its method of administration, is, of course, the main question involved in this discussion. It may be prudent, however, to postpone an answer to such a query as this until we hear the report upon courses of study in secondary schools that is being prepared by the committee appointed at the last meeting of the National Educational Association, of which President Eliot is the chairman.

Whatever anyone may think about the main question, it cannot be denied that there are some incidental benefits that have attended the operation of this curriculum in the city of Newton. They may be enumerated as follows:

1. The interest in the required and alternative studies has grown stronger every year. The course in English literature and composition has been extended and strengthened. History is taught and studied in a manner more rational and effective. Three laboratories have been built and equipped, and the student of science is now more concerned with what he has done and seen in the laboratory than what he has read in the text-book.

2. The class work in elective subjects is characterized by better attention and more enthusiasm. The chilling influence of pupils in the class room who are restive and unhappy because they are compelled to pursue subjects of study to

which they think themselves unsuited, has almost disappeared.

3. The measure and quality of a child's mental power at the age of entering the high school cannot always be determined. Even a wise parent attempting to prescribe a course of study for such an one may go far astray. Under this system of electives mistakes of this character are rectified quite easily and with little discouragement to the pupil.

4. The average length of school life is increased, and not a few are encouraged and strengthened in their intellectual life, who, if Latin and mathematics were prescribed, might go no farther than the grammar school; or, at the utmost, through the first year of the high school.

5. Moreover, the elective system opens wide the door of possible achievement to scholars who are strong and ambitious. Of the 300 pupils in the school pursuing this course to-day, 93 have 17 exercises per week, or more; 48 have 18, or more; and 22 have 20, or more. These figures are significant, and show that this curriculum is no more favorable to the dullard than to the boy of brains.

6. The "special student" has disappeared from the school. The electives are so numerous and varied and the restrictions are so few that any boy or girl who can justly claim the privileges of the school can meet the minimum requirement.

7. The patrons of the school, those most vitally interested in everything pertaining to its welfare, have given to this scheme, so far as is known, their entire and hearty approval.

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V

TEXT-BOOKS OF GEOGRAPHY

Nearly fifty years ago Mr. S. Augustus Mitchell, a Philadelphia map publisher, found himself threatened with financial ruin by the discovery of a process for printing maps from lithographic stones. He had on hand a large number of copperplates representing an investment of many thousand dollars, but the process of printing from stone was so rapid and inexpensive, in comparison with the older plate process, that competition was out of the question. In this quandary Mr. Thomas Cowperthwaite, a schoolbook publisher, who afterward absorbed Mr. Mitchell's business, advised the use of these plates in illustrating a text-book on geography, for which at the time there was a growing demand.

The suggestion was followed, and there shortly appeared a school geography and atlas bearing Mr. Mitchell's name. At the same time two precedents were established that have been followed ever since—one, the policy of concealing the authorship of a geographical text-book under cover of the publisher's name; the other, a plan of presenting on the printed page an arrangement of the subject best adapted to the needs of both teacher and learner.

Just why the name of the author of *Mitchell's School Geography* was concealed I do not know; but the man who prepared both text and maps of these books was a Mr. Young, Mr. Mitchell's cartographer.[1] Mr. Young was a geographer of no mean ability, and his work, judged on the basis of what was then known of geographical science, possessed a higher order of merit than that found in any of the revisions that have appeared since his time; it was both pedagogically and geographically good. There are many school geographies in use to-day that are good from the teacher's standpoint; there are a few that may be commended for their geographic worth; books that combine both qualities, however, are rare.

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[1] I am indebted to the late Mr. Thomas Cowperthwaite for this information.

So far as arrangement and division of the topics are concerned there is practically but little difference between Mr. Young's book and the majority of the geographies now in use. Perhaps the most radical change has been the insertion both of maps and text into the same volume—an arrangement that has been so acceptable that I doubt very much whether the former plan of separate volumes for text and maps would now be tolerated by teachers. I know of but few foreign text-books possessing this feature, and, while conceding its excellence, I believe if the size of our present books were smaller it would be an improvement. During the past twenty years different methods of presenting and arranging the text have been advocated, and one or two books have departed from Mr. Young's plan. Almost invariably, however, they have been rejected by the army of teachers, and not one has succeeded from a financial point of view. In several elementary geographies the text has been so arranged as to consist of a reading lesson and a catechetic summary. This arrangement has met with considerable favor, though it has been condemned by many.

The use of geographical readers has also been advocated, and a few educators recommend their use to the exclusion of the ordinary text-book. Many conservative teachers, however, are of the opinion that a mere reading text tends to result in superficial teaching, and from an inspection of the work of about twenty thousand teachers I believe the claim to be well founded. A good geographical reader may be useful as a supplemental reading book, but it cannot be a good reading book and a good geography at the same time; it cannot well take the place of a legitimate text-book of geography. Moreover, of the few reading books of the kind that I have seen only one, a Canadian publication, approaches respectability. Most of those with which I am acquainted are neither good reading books nor good geographies.

In the production of a geographical text-book three parties are concerned—the author, the editor, and the publisher. Unless he has already achieved fame, the author is the least important of the three. In many instances he is merely paid for the use of his name, and has little to do with the manuscript beyond here and there a suggestion. In any case, his manuscript is worked over and arranged by the publisher's editor or by some well-known school-teacher—for if the author is not in touch with educational methods his work will not be successful. In other words, the college professor will produce a book that is respectable but not useful; the teacher or the editor will make one that is useful but not respectable. I know of but one series in which the work was written and edited by a geographer of eminence, and that is the one prepared by the late Commander Maury. Even in this case the author found it necessary to associate with him an assistant who was in close touch with educational methods, and his physical geography, a magnificent book, was rewritten in order to give the text the topical arrangement demanded by teachers. There are other geographies bearing the names of men well known in the scientific world, but the names are mere figureheads; the work itself in each instance has been done either by one or more teachers or by the publisher's editor. Mr. Mitchell, for instance, has been dead for many years, and the half a score or more of books bearing his name have been written by others, whose work was in no way comparable in quality with that of Mr. Young.[2]

There are several popular geographies that bear the name of no author either on the title-page or upon the cover; moreover, it would not be far out of the way to add that the majority of them bear no marks of authorship between the covers. In nearly every instance such books are the compilations of the publishers' editors. Some of them have been fairly useful; almost every one has been a gold mine to the publisher. From the standpoint of the latter the chief advantage about such a book lies in the fact that there are no author's royalties to pay. Incidentally I might add that, however rotten the trash such books might contain, there is no one to object. No matter how text or maps might be mutilated there is no author to object.

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[2] I mention these books, not because they are especially worthy of criticism, but because they are practically out of the field.

Happily the day of such books is about gone. The past ten or twelve years have witnessed the quiet progress of a campaign of education, and teachers are beginning to demand the genuine work of reputable authors. For many years the agents of rival publishing houses pursued a policy of educating teachers to the defects of one another's books.[3] But criticism is a two-edged weapon, and the policy of the publishing houses proved a blessed boomerang to the great army of pupils who used the books. It has caused a steady improvement in the quality of the latter, and I believe the little improvement that has already taken place to be the forerunner of a most decided movement to demand a better quality of books.

Generally speaking, the success of a common-school textbook of any kind depends more upon the skill of the editor than the knowledge of the author. A book that is poor in quality of material may be made a very paying investment on the publisher's part if the editing is well done; the best material in the world, if poorly edited, will never make a salable book. As an illustration of this I recall the ill fated *Our World* series of geographies. The author did her part of the work well. Her manuscript was capable of being made into books of the very best quality; they were geographically as well as pedagogically good. But Mrs. Hall had had no training whatever in editorial work and her publisher evidently seemed to think such oversight unnecessary. As a result, had the type been pied in the forms the arrangement of the text could not have been more injudicious. Bad as the arrangement of the matter was, it was illustrated with pictures inaccurate in detail, and wholly without geographic value. To add to the general chaotic effect the maps were bound into the books, apparently before the printer had half finished them. Had the publishers deliberately conspired with one another to kill the books beyond possibility of resurrection, they could not have met with more flattering success. I doubt if the series ever repaid the cost of making it. At the time of their appearance I know of no geographic text-books surpassing these in intrinsic merit. Even at this late day a clever editor could take them in hand and with only legitimate editorial work make excellent text-books of them.

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[3] About fifteen years ago, when the schoolbook syndicate was formed, one of the first regulations adopted was an agreement to quit criticising one another's books.

The late James Monteith possessed to a remarkable degree the editorial instinct and training necessary to make a useful text-book. He sometimes failed to grasp the full import of geographic principles—especially those of modern physiography; but his ideas were clearly expressed, his judgment in the selection of material was good, and his method of arrangement was excellent. Any teacher, no matter how poorly prepared for his work, could use one of Mr. Monteith's text-books—and that, after all, is one of the best criteria to determine its usefulness. The fact that nearly twenty million school-children have used Mr. Monteith's books is certainly evidence of their value.

But the ability to edit well, when unaccompanied by a knowledge of the science, is not conducive to the making of a meritorious text-book. Moreover, the extreme superficialism that is inculcated by a numerous class of educational reformers, together with the fact that geography should be studied and taught without a text-book, has done much to encourage the publication of worthless geographies. The slogan of this particular "reformer" is that ''scientific" geography is beyond the reach of pupils, and in the place of geographic principles the child must be fed on interesting stories of travel and descriptions of natural scenery. As an example of the literature encouraged by this kind of reformer I present herewith a few choice excerpts.

> If it were possible to stand on Mount Everest and view the land the eye would be able to take in a region larger than the United States.
>
> Milk in [Irkootsk] is frozen around a stick and sold in blocks. Fishes lean against the wall on their tails, and everything has a solid appearance.

Opposite Bismarck, North Dakota, the current of the river is so swift that the strongest swimmer could not save himself if he fell into the stream, for the mud would settle on him and bear him under.

The great cañon of this [Colorado] river is one of the most wonderful whispering galleries in the world; sounds are carried 100 miles and distinctly heard.

In Europe all Americans are called Yankees.

The Witches' Caldron [in the so-called geyser region of California] contains water black as ink. A stone dropped into some of these springs will rebound from the water like a rubber ball.

Stones that resemble beets, turnips, and other vegetables protrude from the ground, and what seem to be umbrellas, mushrooms, and pinnacles are on every hand.

The glaciers on this side of the mountain [Tacoma] seen from a distance are said to resemble in appearance colossal dried worms with their skins cracked open.

It is said that the dry atmosphere of the plateaus [of Arizona] dries up the juices of the face, leaving wrinkles and scars, thus making the people look older than they really are.

The people of New Mexico generally seem to hate work and regard it as degrading, hence many of them are poor and ignorant.

Although Oregon has a long seacoast it is shut out from the ocean by a great black wall of mountains, and the farmers in the bordering valleys swing their scythes within sound of the great waters, which perhaps they have never seen; for the only way, as a rule, to reach the ocean is by the Columbia River.

Travelers [in Africa] find it as necessary to keep their umbrellas spread at midnight as at midday, on account of the rush of blood to the head, caused by the moon.

The foregoing are taken from a book that pedagogically has many excellent features. There is much about it to show that the author is a clever teacher, but geographically it has no value whatever.

I have in my possession, also, another book designed as a manual for the instruction of teachers.[4] In this manual the author lays much stress on continental structure, and in the case of North America he illustrates his ideas by a diagram—an east-and-west profile through the United States. In the profile the eastern slope of the Rocky Mountain system extends to the Atlantic Ocean, and resting on this slope, unconformably with it, are the Appalachian folds. It would be hard to imagine a graphic representation of continental structure wider from the truth than this, but I have seen it present as an established fact to an aggregate of many thousand teachers.

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[4] Parker's *How to Study Geography*, New York, 1889.

Now I do not wish to say that books such as those from which I have quoted are wholly without merit; on the contrary, they possess many features that make them helpful both to teacher and pupil. Their great demerit is found not so much in sins of commission as of omission. They are utterly lacking in the fundamental principles of geography, and this is a far more serious defect than the presence of error. One may overlook and, perhaps, correct statistical errors; one can reject the fairy stories. But omission of principles, or failure to grasp them, renders a book practically worthless. No matter how strictly inductive it may be to define a mountain peak as "an elevation of land" and a mountain range as a "number of peaks joined together [*sic*], forming a continuous line," such stuff will not pass for geography. The old slogan that children cannot comprehend scientific geography is becoming wearisome. A youthful pupil can just as readily comprehend the fact that a mountain is an immense wrinkle or fold as the conception commonly presented by the educational superficialist. Many educators seem to forget that there is a science of geography, and but few have opened their eyes to the fact that it is far more comprehensive than any other physical science.

In regard to the skill displayed in editing, in artistic appearance, and in excellence of illustration, American geographies have no equals in the world. With respect to their geographic qualities, viewed from a scientific standpoint, they are very inferior to the better class of foreign text-books. Perhaps one reason for this is the fact that in foreign schools the course in geography is far more comprehensive than in those of the United States. Here our pupils rarely pursue the study after passing through the grammar grades; while in Germany, for instance, it is not infrequently carried into the university. With the possible exception of Harvard university I know of no institution in the United States where the course in geography is so comprehensive as that in the schools of Man-chester, England. It is difficult, therefore, to compare an elementary treatise with such text-books as Keith Johnston's *London Geography*—in fact, comparison would be out of the question.

In German text-books there is apparent a noteworthy feature that sooner or later will assert itself in American geographies, namely, the importance given to physiography. Ritter was full of it and his followers have not lost sight of his example. In almost every line of the German text-book one may perceive commercial geography as a logical sequence of physical geography. The maps of the German text-books practically are physical maps. Considered as in the light of political and commercial maps they are not equal to those of American text-books, but in every other respect they are superior. German cartographers are the best in the world, and the spirit of their work is manifest even in their schoolbooks.

The work of making a geographical text-book does not cease with the appearance of the first edition of the work. An arithmetic or a grammar, once off the press, needs but little work in the way of revision during its period of existence. A geography, on the other hand, is never done. Every year the text and the maps must be carefully revised in order to record the results of discovery, statistical inquiry, and political change. The policy of different publishing houses differs much in respect to such editorial work. At least two well-known schoolbook firms employ trained geographers on generous salaries to look after their geographic publications, and the work of Harrower, Lawrence, and Hinman is more and more appreciated with each succeeding year. In some instances this supervision is intrusted to the map engravers, and in others to clerks of the house.

During the past five years there has been a great awakening with respect to geographical science. Since that century of discovery that began with the landfall of Columbus and ended with the passage of Bering Strait, there has never been a period in which so much vital interest centered in the results of higher geographic research as to-day. The result cannot fail to show itself in future text-books. Teachers whom the publishers' agents have trained in the art of statistical criticism are beginning to acquire the science of higher criticism, and are demanding not only that pupils shall have text-books, but they are also insisting that those text-books shall be geographically good. Sensational stories of adventure are not a part of geography, and the same may be said of such statements as "Adam and Eve lived in the Garden of Eden," or "Siamese dancing girls pick up bits of straw with their eyelids."

In an ideal book the statement of a fact must present both cause and effect. It is not enough to say that the Mississippi valley can support a dense population; it must emphasize the fact that this valley can support a vast population because of the inexhaustible grain, coal, and iron product within or near its borders. It is not enough to assert that the Plains region is sparsely populated; the pupil must understand that the paucity of population is due wholly to the insufficiency of rainfall.

But it is with the maps of our geographies that I find the most fault. That they present an attractive and an artistic appearance one cannot deny. In this respect they far surpass the maps of either English or German text-books. In their intrinsic value, however, they fall short from their lack of character. From a carefully drawn map the physical geography of a country may be as accurately read as from the printed page of descriptive text. Moreover, the science of map-reading or map-interpretation is not necessarily a department of higher geography; it belongs in the elementary stage of study, and is readily comprehended by younger pupils. If the cartographer is permitted to give character to the map the latter will show whether the surface is level or mountainous; whether the coast is rock-bound, cliff-girt, or bordered by wave-formed spits; whether the climate is humid or arid; or whether the rainfall is irregularly or periodically distributed—all these features may be read upon the face of a well-drawn map. I have many times taught pupils of ordinary advancement to thus interpret the physiography of a country from the map, and, with pupils of the intermediate grades, were I compelled to choose between a good map and a descriptive text I should certainly take the former.

Outside the government bureaus there are but few cartographers competent to produce good maps. Most of the maps in the text-books now in use were drawn by the late Jacob Wells. He was a most excellent cartographer and in no way responsible for the demerits of schoolbook maps. His pupil, Mr. Farquahar, bids fair to produce work equally acceptable. Mr. Russell Hinman has shown a decided talent in this field, and with the proper opportunity could be relied upon to produce a map of greater educational value than has yet appeared.

Of the various schemes for map drawing found in text-books not one reaches beyond the plane of respectability, and the great majority are worse than worthless—they teach error and untruth. To project a map in the proper manner is just as easy as to draw it on a meaningless diagram, yet I doubt if there be a public school teacher in the United States, trained in a normal school, who can lay off a Bonne's projection for the State in which he lives. The projection of a map is an easy matter and it can readily be taught to pupils of the intermediate grades. Why the teachers of the public schools have permitted the wretched botchwork that, under the name of "lessons in map drawing," cumbers the text-books and the various teachers' manuals, is a mystery. Map drawing is a very useful study; beyond its use to fix on the mind a mental photograph of the region depicted it also inculcates habits of neatness and exactness that are equally valuable in all other lines of educational development. I know of no feature in our text-books that needs more to be revolutionized than this, and there are but few in which a revolution would be followed by better results.

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NEW YORK

VI

EDUCATION IN FOREIGN PERIODICALS

Mr. Froude's Inaugural Lecture as Regius Professor of Modern History [1]

"The Cardinals, on the election of a new Pope, chose occasionally the oldest member of the College, in the hope of an early vacancy. The expectation was sometimes disappointed, and the most distinguished pontificates have been those of men who at their elevation were supposed to have one foot in the grave. I have no such ambitious hope of a long tenure of my own humble office. I am perhaps the oldest, or nearly the oldest, member of the University in this room, and with me at least the *summa brevis* of life *spem vetat inchoare longam.* If you ask me why then I underook it, I might say that I was tempted and fell. I never, however, read of a cardinal who refused the papacy because he was too advanced in years, or a lawyer who refused the Great Seal for such a reason, or a statesman who has not been willing to be prime minister. If these great offices are not deemed too heavy for an old man, a professorship of history may have been accepted innocently by a person who has made it the study of his life. His tenure may be long or brief, but at any rate it will not extend beyond the time when he finds he can be no longer useful.

"Briefly, I was offered an opportunity of returning to my old University after a long absence. The temptation was too strong to be resisted. It is my business now to justify if I can the choice which sent me here.

"I have come back to Oxford, but no more to the Oxford that I knew. I left an Oxford which was a centre of vigorous intellectual life, with a circle of remarkable men carrying on a great movement and making their mark on the outer world. Doubtless it is the same now, but my old friends are in their graves. Their work lives after them, but in forms which they did not expect, while the floods which Keble watched from

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[1] Delivered before the Vice-Chancellor and the University of Oxford, October 26, 1892. Reprinted from *Longman's Magazine.*

Bagley Wood, washing round the towers and churches of Oxford, but failing to reach them, have risen at last over the enchanted city. The revolution which he dreaded has come upon it. It still stands; it is full of animation and energy; but Keble and Newman are gone, and the system which produced such men is gone with them.

"New schools have sprung up and new modes of teaching. Greek and Latin have lost their old monopoly. Modern languages are studied, and modern history, and modern philosophy and science. Athletics, which used to be a plaything, have become a serious pursuit, as if we were to have the Olympic Games again. The celibate seclusion of college life has broken down, and ladies, the horror of the scholastics, have invaded the sacred precincts.

"In all this I feel like Epimenides after his forty-five years' sleep. Few, very few, of my contemporaries now survive, and our grey hairs tell us that we shall soon follow, and that in this new birth and regeneration our own part can be but a brief one.

"Well, then, for my own share, I am here to teach modern history, and I am reminded at the outset that this is changed too, that there is no such thing as modern history. History is one and continuous from the beginning of things. I must humbly answer that I never doubted it. I never supposed that the human race was created fresh at the Christian era. We always knew that the modern world inherited language, laws, and literature from antecedent ages, and that the actions and thoughts of Jews and Greeks and Romans have helped to mould the minds of all that have come after them.

"Still I think the distinction is a harmless one. The old civilisation and the old creeds had worn out. With new religions, with new races of men with new impulses and fresh types of character, there did virtually commence a completely new epoch. Scandinavians, Goths, Huns, Arabs, had minds and ideas of their own. They were neither Jew nor Greek. The *Nibelungenlied* is a counterpart of the *Iliad*, but owes nothing to it, and indicates even a ruder period of national development. I consider that without offence I may still regard the Northern Invasion as a period when old things were wound up and a new order began.

"Yet, divide history as we will, the surface is still immense. The modern side of it embraces the fortunes of mankind for sixteen hundred years, event piled on event, over the whole area of the globe, with no visible coherence or visible purpose. Students may wander about it, as in some vast forest, and never meet. To examine it all in detail, to learn what those millions of millions of human creatures really did, and what they were really like, is obviously impossible. Impossible from the extent of the subject, and impossible from the nature of it, because the inquirer himself has no fixed point to stand upon. The astronomer, when he is examining the motion of star or planet, is himself moving as he observes. The astronomer knows it and allows for it. The historian is moving too, but does not know it, or forgets to allow for it. He has to interpret his discoveries by his own general theories and his own estimate of probabilities; and lights and shadows change their places, and what seems likely and reasonable to one age seems unlikely and even impossible to another.

"In this perplexity men have looked for general laws which may underlie the multitude of phenomena. The botanist who would understand the nature of an orchid need not dissect every specimen that he can find. He examines a few, discovers in these certain uniform features, and learns the principle of their structure. Some such general principle philosophers have hoped to find in the history of mankind.

"Many hypotheses have been advanced and many will be advanced. A theory is started. It is received perhaps with enthusiasm, and gloried in as a scientific discovery. The misfortune is that it is of such short continuance. Each generation in these clever days likes to make its own philosophy. In a few years it is superseded by something else, and that again, if one lives long enough, by another. Old men who have witnessed two or three such experiences grow shy and sceptical, and refuse to listen to any more.

"In my own youth, when Bishop Butler was an authority, we were taught that we lived under a providential dispensation of which we knew very little. The probable interpretation of our position was, however, that we were in a state of probation; that our life in this world was a school for the training of character, with a view to some ulterior purpose. This purpose was not explained to us, but we had a rule of conduct in our consciences which experience in the long run uniformly sanctioned. Nations and individuals had the same responsibilities. Those who were frugal, brave, pure, honest, and industrious, were internally happy and outwardly prosperous. Those who followed pleasure, power, wealth, or luxury, were brought to account one way or another, and made to know that they had missed the road.

"Such an explanation of things has been too old-fashioned for modern speculation. For myself, I consider that it is still the most reasonable which has yet been offered. History, so far as history has anything to say about it, does teach that right and wrong are real distinctions. In the shape of a law I can discern nothing else.

"It may be said that we know this already. If history proves only this, we need not waste time over it.

"So a Political Economist asked once what the *Iliad* proved; and indeed it is hard to say what the *Iliad* does prove, except the truth of the French proverb, 'Cherchez la femme,' when there is mischief about. Yet the *Iliad* has for 3000 years been the best educator of mankind—Greek and Roman, Frank and German, Celt and Saxon, have learnt there, more than anywhere, to admire and love what is brave and beautiful, and to despise what is cowardly and base.

"The great poem of human history, if read in the same way, may have the same value for us; and if it has, we need not ask for more. All depends on what human life means. Assume any purpose which suits your inclination; you will easily find evidence for it.

"Voltaire conceived that the world was being made into a tolerable place of residence for a set of mortals who might or might not have any further destination. He insisted in the *Essai sur les Mœurs*, that from original darkness there had been a gradual spread of intelligence—that manners have softened with knowledge — and that the process might be expected to continue. That in fact the Tree of Knowledge and the Tree of Life are really the same.

"Voltaire's view developed into a French school of history, which made its way to England and took a philosophical form. Natural science had shown that Law acted uniformly through all creation, organic and inorganic. The sole exception was in man, in what was called free will. But was there any such thing as free will? Was it likely that the harmony of universal nature was broken by such an inexplicable anomaly? Was not man after all like other animals, only differing from them by larger capacities? Every event had a cause;

every action a motive. The brute not being able to accumulate experience, followed his immediate impulses. Man, by possessing knowledge, could foresee consequences, and thus had a choice of motives. But always the motive strongest at the moment did and must prevail, and thus the notion of free will was merely an illusion rising from inattention to determining causes. Wise action, therefore, depended on correct understanding. The more a man knew, the better he would act. History exhibited merely nothing but the actions resulting from imperfect knowledge under the influence of surrounding circumstances. Circumstances became less powerful as the mind became more enlightened, but the law of cause and effect could be traced through the whole of it; and history might be reconstructed on this principle into an exact science.

"Mr. Buckle was the English prophet of this school. He was a man of vast information. His book was ingenious. It fell in with the temper of the times.

"There were difficulties, however; and I, for one, could never completely believe. Leaving out the free-will puzzle, science must have ascertained facts to go upon, and where was it to get them? In the physical sciences single instances are not enough: several specimens must be examined, exceptions scrutinised, and hypotheses tested by experiment. In history we have a record of things which happened once, or were said to have happened, but which, once passed, are gone for ever. Verification is impossible. Our evidences are in books which we cannot cross-examine in the witness-box. The writers on whose authority we depend, shared, we can see, in the illusions of their age. They have been partisans, and their beliefs have followed their sympathies. The hero or sage to one party is a knave and idiot to another. We may gather a general idea of events which happened, but of how they happened and why, we have small means of judging.

"Laws and literature give us something more substantial; but even they not very much. We cannot understand a law till we know the circumstances which it was intended to meet. Literature gives us the opinions or sentiments of particular persons at particular times, and cannot give us more. Both are useful and instructive if we are contented with modest probabilities. But such materials are too frail for science, especially as the philosopher has weaknesses of his own to mislead him. He is fond of his hypothesis; he selects the facts that suit him and drops the rest.

"But there is a graver objection to treating history as a science. In science properly so called, the individul is nothing; the species is everything. The individual is an accidental phenomenon, existing for a few days or years in space and time, and then swept away to make room for others of a similar kind. The individual part of all things, Schopenhauer says, is mortal. The immortal part is the type which survives when the phenomenon is gone. This is perfectly true of the rest of creation. To the infinite millions of living things which fill earth and air and water, their mother Nature seems absolutely indifferent. She finishes a flower or a May-fly with a completeness which the most exquisite human skill can neither rival nor approach. She leaves the flowers to be gathered idly and flung away; the May-fly to be snatched up by the passing swallow. In her inexhaustible treasure-house she has myriads of the same kind waiting to be born. So it is with all things but man; and Mr. Buckle consistently says that man is no exception. He, too, thinks as little of this or that individual as the natural philosopher.

"It may be so.

"But there is this difference, that in those other things the important, or, if you will, the immortal, part of them is what they have in common with the rest of their tribe. But with man, so far as he is an object of interest, it is the type which is nothing, and the individual which is everything. Take away from Ulysses or Hamlet their personal individuality, and leave only what belongs to the race—would you say that you had reserved the immortal part and thrown away the unimportant? The immortal part of a man is not that which he shares with the rest of his race, but that which he possesses of his own.

"It may be that in the evolution of human beings there are some general processes, bodily or mental, to which all alike may be subject. These science may perhaps discover, and so far there may be a science of History. But the relative importance of the general and particular is with man in the inverse ratio to the rest of nature. In poetry, in art, in religion, in action and life, the interest centres always on persons and personal character.

"We now hear less than we did of a science of History, and a less ambitious theory has taken its place—that the human race is in a state of progress which it is the pride and duty of history to record—progress never surer or more exhilarating than in this very age in which we live. It is now seen clearly that each generation is necessarily wiser than the generation preceding, having inherited all that there was before, and added its own acquisitions. The old saying used to be that our fathers had more wit and wisdom than we. We say now, our fathers did well enough considering their disadvantages; but it would be affectation to pretend that we do not stand on a higher level than they did. Do we not know a thousand things of which they had no glimpse? Have we not made slaves of the elemental powers; bridged the ocean with fire-ships; made the lightning run our errands; measured the velocity of light? Are we not educating the poor, making them happier and better; and now that our eyes are opened, does not history assure us that what we witness is the consummation of a process which has gone on for ages and will continue indefinitely?

"Again, I can but say it may be so. Indisputably there is progress of a kind; but I am obliged to ask, whither? Progress from what to what? Is it so certain that in things most essential we are so much wiser than those who went before us? Once more the question rises: What is the meaning of human life? Is it that we may multiply our enjoyments and conveniences, and pursue more sharply and successfully what we call our interests? Is it that we are to make ourselves masters of the elements, search into the mysteries of nature, and use our discoveries to make existence more enjoyable? Or is all this only secondary—and is it our real business here to make ourselves brave, true, just, and honourable men?

"I hear people say impatiently, Of course we know all that. Of course people must be virtuous. But 'virtue,' as it is called, being the most precious of all things, is of all things the hardest to come by; and if we are to have the most moderate success in the search for it, we must go to work with the same direct and patient effort, with which we learn any other difficult art.

"Aristotle observes that in progressive democratic communities *ἀρετή*, or moral excellence, ceases to be an object of first importance. Of *ἀρετή* it is thought that *ὅποσον οὖν* (ever so little) will be enough to go along with, and that little will come of itself. And he adds that it does not come unless more systematically sought after, and that for want of it the Greek republics went upon the rocks.

"According to Aristotle, that is the best condition of things which produces not the largest amount of knowledge or wealth, but the men of noblest nature. And I cannot see that there is any distinct progress in productions of this kind. To compare one age with another is difficult to do at all, and impossible to do completely; but the most sanguine believer in evolutionary progress would hardly say that if he were to meet Socrates or Cicero or St. Paul he would be conscious of any great superiority to them. I am not certain that a modern bishop is very much above a mediæval abbot. Knowledge of material things seems to make very little difference.

"No more perfect specimens of womanhood were ever seen than Penelope or Nausicaa.

"The Romans under Trajan thought, no doubt, that they had progressed considerably since Cincinnatus followed the plough. But had they? Knowledge came, but wisdom lingered. The empire was going to pieces from the want of the neglected *ἀρετή*.

"Even, however, in the outward essentials of food and clothing and housing, it is not certain that the mass of mankind in the present generation are better off than their forefathers. Workmen and workmen's families have still a hard time of it. Nor do I know that between them and what are called the upper classes the feeling is better than it used to be. The enjoyments of life have always been unequally divided, and it is easy out of the imperfect records of earlier ages to draw pictures of tyranny and cruelty and the oppression of the weak by the strong; but the lot of the immense majority of mankind is not even now a delightful one. When the Paris Communists in 1870 burnt the Tuileries and the Hôtel de Ville and threatened to burn Paris itself, Carlyle observed to me, 'Those people are saying to their rulers: "The conditions of our lives are intolerable. Our forefathers may have been as ill off as we, but at least they had another life to look forward to, when wrong would be made right. With your Intellect and your Progress, you have taken from us our last consolation; and if you will not mend this accursed society that we live in, if you tell us that in the nature of things we must have all the pain and you the pleasure—then, by heaven, we will destroy society and you and ourselves too, and so make an end." '

"I do not believe that the condition of the people in mediæval Europe was as miserable as is pretended. I do not believe that the distribution of the necessaries of life was as unequal as it is at present. Of liberty, no doubt, there is a great deal more going now than there used to be. In the middle ages there was little liberty for any one. Kings and peers, knights and vassals, villains and serfs, were held together under strict bonds of obligation. But the one thing certain is that between the lords and their feudatories there were links of genuine loyalty which drew high and low together as they have not been drawn since the so-called chains have been broken. If the tenant gave service, the lord gave protection. If the tenant lived hard, the lord had little luxury. Earls and countesses breakfasted at five in the morning on salt beef and herring, a slice of bread and a draught of ale from a black-jack. Lords and servants dined in the same hall and shared the same meal. As to dress, plain leather and woollen served for all ranks, except on splendid ceremonials. Examine the figures of the knights on the floor of the antechapel in the Temple Church in London. The originals of those forms were not brothers of the order or bound to poverty. They were the proudest and most powerful of the English peers. Yet their armour is without ornament save the plain device on the shield. The cloak is the lightest and simplest. The heavy sword hangs from a leather belt, fastened with an ordinary harness-buckle. As those knights lie there, so they moved when they were alive; and when hard blows were going they had an ample share of them. No fact of history is more certain than that the peasants born on the great baronies looked up to those lords of theirs with real and reverent affection—very strange, if one party in the contract had nothing but hardship and the other was an arbitrary tyrant. Custom dies hard, and this feeling of feudal loyalty has lingered into our own times with very little to support it. Carlyle told me once of a lawsuit pending in Scotland affecting the succession to a great estate of which he had known something. The case depended on a family secret known only to one old servant, who refused to reveal it. A Kirk minister was sent to tell her that she must speak on peril of her soul. 'Peril of my soul!' she said. 'And would ye put the honour of an auld Scottish family in competition with the saul of a poor creature like me?'

"I doubt very much whether under the new system of contract and independence we shall see much more of this kind of devotion.

"Other good results may of course rise out of the change, but they will not take the form of attachment between employers and employed. Affection will hardly grow where interests are opposite.

"But if there are doubts about social progress, it will be said, history at least proves political progress. All history (we have been lately told) shows a growing tendency to government by the people and for the people—that is, to democratic republics. Church, monarchy, feudalism, reformations, revolutions, the chequered phenomena of the last thousand years we are to regard as a *præparatio evangelica*—a making straight the way for the advance of constitutional liberty, the last act and climax of the whole human drama. We are taught to observe first whole peoples in shackles, unable to call their lives their own. The rights of man assert themselves one by one. Rank loses its authority. Equality is at length established with liberty at its side. Brotherly love is to follow, and the perfect state will then be arrived at. Nations are no longer to be governed. They are to govern themselves. The individual is to be his own centre and the sole judge of his obligations and his interests. He is to have an equal voice in the making of the laws and the administration of the laws—to be free to act as he likes—think as he likes—speak as he likes, rightly or wrongly. It is his own affair, so that he does not rob his neighbour of his similar rights.

"This is to be the consummation of human political wisdom, the far-off divine event towards which the wars of classes, the struggles between princes and subject, religious wars, dynastic wars, all the complex movements of the past are to be interpreted as unconsciously tending.

"I do not doubt that in England and in other countries the decay of authority can be traced through a long period. All organized things decay. Life itself is growth and dissolution. But if this is the whole meaning of it, and the establishment of democratic republics is the aim of human existence, one asks, 'What then?' What is to be done with the liberty when we have got it? Liberty itself must be a means to a further end. What is that end? Life, we are told, will be grander, brighter, and better than ever it was before. But is this true? Does experience, so far, show that the finer features do grow with such exceptional splendour with political liberty? There is a liberty which it is worth while to live and die for—liberty from foreign oppression, liberty from tyrannical rulers who abuse the law which they are established to administer—liberty from that worse oppression which would compel men to profess beliefs which they do not hold. To make such rulers know that they are responsible to a power still higher than themselves is great and heroic, and the stories of such bold deeds are the most elevating chapters in human history.

"But such freedom has nothing but the name in common with the modern theory that every man is his own keeper. Because the captain and officers of a ship have proved unfit for their posts, it does not follow that there shall be no captain or officers, or that the crew shall choose their own.

"Does history show that in proportion as men are left to their own wills they become happier, truer, braver, simpler, more reverent of good, more afraid of evil? If it be so, *cadit quæstio.* The problem of human existence is solved. We have but to abolish the few remaining restraints, and original sin will be extinguished. But the history which is to prove it I believe to be a history of the future, not of the past—a prophecy, not a narrative of fact.

"What is liberty? What used we to mean when we called a man free? The workman became free of his craft when he had learnt under a master all that the master could teach him. Then, and not before, he was set to work on his own account. The artist acquires a free hand when he knows what ought to be done, and eye and hand work together to do it. The musician is not free while his fingers blunder over the notes. To set free an apprentice to go his own way while he is half taught, or not taught at all, is to leave him to his own incapacity. Every art which we learn has to be acquired under instruction and restraint. We do not hear of the right of a carpenter or a mason to go wrong if he pleases. Why, in the Art of arts, the art of life, should any other principle hold? What is the use of emancipating a man from control till he has proved that he can control himself? Those who are most impatient of control are those who need it most. I have heard it argued that subordination creates servility, and that to set a man free is to make him worthy of freedom. It is like telling a painter to go his own way and call no man master. It is to expect from liberty the magical change of character which theologians used to expect from faith. Would soldiers or seamen be truer to their salt, if their officers were their servants and received mandates from them as we say our members of Parliament do? Would family life be improved if wives and children owed no obedience to husbands and fathers? Human character has risen to excellence under every form of political constitution, but I do not see that democracies have shown any marked superiority in this respect, or that in this favoured age there is any special increase of personal dignity or merit. The French have not particularly improved since the Great Revolution. The peasantry may be better off, but they have not shown themselves braver or more patriotic. The literature of France is not purer; the statesmen are no wiser. Napoleon's soldiers who had Europe under their feet were born and bred under the old *régime*. England has done well to abolish negro slavery, but whether to have raised the negro at a single step to be the white man's equal is to have made him in fact the white man's equal, or to have put him in the way of becoming so, is still a prophecy and waits to become a fact.

"One explanation there is of the levelling spirit of modern times which is at least intelligible. Most men, high or low, in these days have come to make it the principal object of their lives to get as large a share as they can of money and enjoyment. Exceptional power or privilege is likely to be abused as long as this is so; and all being on the same moral level, caring only for what they can get, all may claim to be on the same political level, to look after their own interests.

"I urged this on Carlyle when he was writing his *Shooting Niagara*. He flung it from him with disdain. 'Interests!' he said; 'what have men to do with interests? There is a right way and a wrong way. That is all that we need think about.'

"Yet I believe my explanation is the real one. It is quite true that class privileges nowadays would be unfairly used. The mistake is in assuming that it was always so, and that such inequalities at the time when they arose were as mischievous as they would be at present.

"In my reading of English history there was once a warmer relation between high and low, when each class thought more of its duties than its interests, and religion, which was the same to all, was really believed in. Under such conditions inequality was natural and wholesome. When religion became opinion, dubious more or less, and divorced from conduct, while pleasures became more various and more attainable, the favoured classes fell away from the intention of their institution, monopolised the sweets of life, and left the bitter to the poor.

"Motion and heat, it is well known, are two modes of one and the same force. Motion can be converted into heat, or heat into motion, but both cannot exist together. It is the same with power and luxury. An aristocracy contented with plain living and bearing its share in the strokes and batterings of life, might keep its privileges for ever. An aristocracy which has nothing to show for itself but palaces and splendid idleness, must expect to forfeit its privileges. The palaces and idleness it may keep for a time, but these, too, with uncertain tenure.

"The sum of it all is that human society is in healthy condition when the wise rule the ignorant—rule with equal-handed authority over high and low, rich and poor. But that it can prosper at all without any authority, subject only to an imaginary line that one man's rights are not to interfere with his neighbour's, is a devout imagination which prophecy may enable us to believe, but which has no sanction from history. Mankind are made unequal. Legislation cannot make them equal, and freedom does not create the virtues which might make the presumption into a reality.

"More than once in the chequered experiences of mankind there have been analogous epidemics of enthusiasm. Ideas have taken possession of enormous masses of people, calling themselves sacred, sweeping all before them for generations and ending in the sands like African rivers. For two hundred years the noblest part of Europe was persuaded that its highest duty was to rescue the Holy Sepulchre from the Saracens. The ineffectual effort cost Christendom six million lives, and the nations woke out of their delusion to find that the Holy Sepulchre could not be rescued from the Saracens, and that the duties of English, French, Germans, and Burgundians lay at home and not in Syria. Generosity of intention cannot conquer facts, and enterprises inspired by passion and unguided by wisdom stand in history as monuments of folly. I sometimes think that this great wave of universal emancipation is not unlike the Crusades, a generous idea, taken up with impetuosity, decorated with fine flowers of rhetoric—but flowers which are but blossoms only, and will never set into fruit. I cannot find in history an encouragement to hope that on this road lies the way to regeneration. I, for my own part, will not make history answerable for what I cannot see that it teaches. Statistics, it is said, will prove anything, if you take only what makes for what you wish and leave out the rest. To me the entire theory of political progress is without interest. I do not find that liberty in the modern sense of the word raises the character either of individuals or nations; and if our existence on this planet has any meaning at all, the effect on character is the chief thing to be considered. The only true progress is moral progress.

"There have been great men and good men under monarchies, aristocracies, republics, and limited democracies; but not more under one than under the other. I regard them all as accidental and unimportant varieties of the forms which society assumes. The sum of all is in Pope's line—

> " Whate'er is best administered is best.

"Leaving historical theories, then, we may turn to the less ambitious narratives. Here we should be on firmer ground, for we are rid of inferences, and have to do only with supposed facts. I have still, however, to say supposed facts, for the writers on whom we depend were subject to the prejudices of their own times, and we who study them have prejudices of our own which appear in the form in which we re-tell their stories. We speak of the mythic periods of history and we fancy we live in clearer daylight. We might as easily escape from our shadows. All history is mythic. Our knowledge of one another is mythic. Our knowledge of everything is mythic, for in every act of perception we contribute something of our own. No two persons describe alike a scene which both have witnessed.

"Anecdotes, generally discreditable, gather round eminent men. One person believes such anecdotes because he is constitutionally inclined to doubt the virtues of eminent men; another disbelieves for the opposite reason; but the unfavourable verdict usually carries the day. Stories of this kind are generally pungent. The most pungent are probably the most false; but they pass into history because they serve to amuse; and when they refer to persons who lived long ago, great writers, who admire their own time, adopt them for the sake of contrast. Macaulay is a great offender in this respect, and almost always takes an unfavourable interpretation of the conduct of a man whom the world has admired. James Spedding had to protest againt his Bacon. Sir James Stephen has shown his wanton injustice to Warren Hastings, but the brilliant and scandalous legend will probably survive the criticism, preserved by the vigour of Macaulay's style.

"*Darkest England*, we hope, is mythical in part at least. Yet it came out openly. It was submitted to hostile scrutiny, and hereafter anyone writing unfavourably about our present condition may fairly quote it as evidence.

"Imagine the colours in which we shall appear if such a writer treats us as Macaulay treats the English gentry of the close of the seventeenth century.

"We cannot escape our prejudices, which will and must guide us in the witnesses whom we trust. History consists of the actions of men. Actions rise from motives, and motives from contemporary beliefs and preferences. Such beliefs and such inclinations change as widely as our social habits. Yet in writing and describing, some motive has to be found to give the action a meaning; and the historian, often knowing nothing of any other which there might have been, selects such motives as he and his readers are conversant with, and he is considered judicious and sensible precisely as he explains the past on the principles of his own time.

"This I call 'mythology.' He does not know, he only conjectures; and he announces his conjectures for facts. Yet all the time he may be absolutely wrong. Language full of honest and fiery meaning in one century may have been trodden into cant in the next. Expressions in constant use by the Puritans and Covenanters would, if used now, imply insincerity or weakness of judgment. Therefore the Puritans and Covenanters have been considered fools or hypocrites.

"The ages do not understand each other. Think how changed in the last hundred years has become our attitude towards the supernatural! The early Protestant writers are full of appeals to a special Providence. The hagiologies of the Catholic Church are woven out of miracles. They were believed without hesitation. The evidence is often unimpeachable. The personal companions of a bishop declare that they saw him in repeated instances heal the sick with a touch, raise the dead to life, and cast out innumerable devils. The present age has ceased to believe in such wonders. The judicious historian treats it all as fraud or folly. It was neither one nor the other. We simply do not understand the condition of the biographer's mind. The bishop and his companions would similarly regard ours as atheistic, and we should be both mistaken.

"The evidence for such miracles remains without alteration. The change is in ourselves.

"Again, to note another tendency. Modern opinion, and therefore modern historians, incline to take the side of distinguished sufferers. Men and women convicted of treason are generally held to have been condemned unjustly. The historian's virtue is

> " To make him worthy whose offence subdues him,
> And curse that Justice did it.

"I will mention an instance or two.

"Writers of note, English and Scotch, require us to believe that Mary Stuart's casket letters were forged by the Lords of the Congregation as an excuse for dethroning her. These letters were examined by the Scotch Privy Council. They were submitted to the Scotch Parliament. The circumstances of the discovery were published at a time when, if there was foul play, it could have been instantly detected. The letters were brought to London and laid before the Queen and her ministers, to whom Mary Stuart's handwriting was perfectly familiar, and again to a Committee of Peers, among whom there were her warmest friends. The ambassadors of the Catholic Powers at Elizabeth's court were equally eager to prove her innocent; yet we do not find a trace of suspicion among them. Yet we are required to believe that all these persons were taken in by a forgery, so clumsy that her modern defenders, who have not the originals before them, imagine that they can detect it with ease—that Elizabeth and Burghley and Walsingham, Sir Nicholas Bacon, and others of honourable fame, were parties to the fraud; all because such persons think it unlikely that an interesting woman could have written those letters.

"And, strange to say, they see no difficulty in such an hypothesis, and English historical opinion is content to leave the question open—to leave open, that is, whether Elizabeth and those eminent public servants of hers, who carried England through the most dangerous crisis of its national existence, were among the basest villains that ever disgraced humanity. We may as well abandon the study of history if we are to carry it on upon such wilful principles.

"Again, as nothing is too bad to be believed of the reign of the English Bluebeard, a story passes as proved, and has been adopted into our books of criminal law, that while the Bluebeard was on the throne, 72,000 felons perished on the scaffold; from which it follows, first, that the nation was infested with robbers and murderers, and next, that the law was inhumanly cruel. No chain is stronger than its first links, and though the charge has been made a hundred times, it rests on nothing but a story told by Jerome Cardan, a crazy man of genius given to astrology, who says that he heard it from a French bishop. Literally that is all the authority. It is true that Wolsey was a strict administrator, and Lord Darcy accused him of being over-severe on the criminal classes. It is true also that Henry VIII. abolished the clerical immunities; and after the rebellion of the North, in which the clergy had been especially active, he hanged two hundred priests and monks, to the extreme abhorrence of Catholic bishops all over Europe. But surely English historians ought to have looked further before accepting a fact so monstrous on the single evidence of one of these bishops, and that too at second-hand. The 72,000 victims of Henry's tyranny are about as chimerical as the 11,000 virgins at Cologne.

"Once more. The Netherland historians assert that 50,000 heretics (or 100,000 heretics, they are not sure which) were put to death judicially in the Low Countries alone, under the edicts of Charles V. I thought it strange, for Charles V., through the greater part of his reign, was trying to conciliate the German Protestants, whom a persecution so extravagant would have exasperated into fury. No doubt Charles, as a good son of the Church, did endeavor to check what the popes called heresy in his hereditary dominions, and the language of his edicts was extremely severe. But I have to observe, first, that the Inquisition was not established in the Netherlands in Charles's reign. He could govern only by the law, and the law was carried out by the Netherlands officials themselves.

Secondly, that in a well-ordered country 50,000 religious criminals could not have been tried and executed without leaving a distinct trace on the judicial records. No such trace exists that I know of, nor was the accusation brought till the war with Philip had begun. In the Dutch *Martyrologies* I found accounts of 500 who had suffered. The rest of the number must have been made up (and even so enormously exaggerated) of insurrectionary Anabaptists, who broke out again and again into furious communistic insurrections, directed not against the Church, but against order and civil authority.

"We might as well say that the Sepoys who were killed in the Indian Mutiny had been put to death for religion. Yet the 50,000 were accepted by no less an authority than Gibbon, who alludes to them to point a sarcasm at the superior ferocity of Christian intolerance, as contrasted with the milder persecutions under the Roman Empire.

"The worst of these sweeping statements is the tenacity with which they fix themselves in the memory. Truth is moderate and hesitating. Fiction strikes boldly, and the point of its lance is barbed.

"Cardinal Newman says that Protestant tradition is based on wholesale unscrupulous lying, and this story may be taken as an instance of it. In the history of the Reformation, however, the lying is not always on one side. There will always be unconscious lying where passion is strongly excited. But I do not think the truth is forwarded by the method now in fashion of setting one version against another, and taking as certain the worst parts of both. This is perhaps a worse travesty than either would be taken alone. Two negatives may make an affirmative, but I never heard that two falsehoods would make a truth.

"I have another complaint to make, though I can only allude to it. I mean of the light manner in which popular historians scatter epithets, and distribute censures, with no authority but their own fancy. Rival queens may be supposed to have been jealous of one another. Elizabeth and Mary Stuart were rival queens, therefore Elizabeth's treatment of Mary was caused by jealousy. Robertson says that when Charles V. retired to Spain after his abdication he was 'sensibly mortified' to find that less attention was paid to him than when he was Emperor. Perhaps less attention *was* paid to him, and Charles may have observed it; but how does Robertson know that he was mortified? Probably it amused him, or it may have been what he expected and desired. Eminent men and women ought to be spared these gratuitous ink-spots.

"I might mention a thousand such instances, but I must hasten on. I have to say before I end how I, myself, think that history ought to be written.

"Shakespeare is the greatest of human dramatists, but nature is a dramatist still greater, and Shakespeare is so great because he is nearest to nature. He does not moralise upon his Macbeths, or Lears, or Richards, or Henries. He gives you no opinion of his own, but he gives you the men themselves to look at, to study, to reflect on, and (if you please) to form opinions about for yourself, though this is not always necessary. He draws no lessons out of what he lays before you. He does not invite *you* to draw lessons. The more completely you have mastered these plays, the less you will be able to say what they have actually taught you. You cannot draw out in words even the judgment you form upon the characters. Hamlet will be argued over to the end of time, and people will differ about him as they differ about persons whom they know. There is always something in the actions of men, and in the men themselves, which escapes analysis. They may strike us with awe, pity, admiration, fear, or hatred. They may amuse us or revolt us, but the feeling created even by an Iago cannot be summed up in compact phrases addressed to the understanding.

"Well, then—

> " All the world's a stage,
> And all the men and women merely players.

"The historian and the dramatist alike represent the actions of men. If the historian would represent truly he must represent as the dramatist does.

'If you are to have from him a real trustworthy picture, he must show you the figures that he is talking about, faithfully delineated, with all the circumstances that surround them, completely perceived, and made intelligible, and then let them unfold their characters in their actions with such insight as you can gain into their inner natures. You will forbear to judge.

"If you have done your work well there will be always something which evades your censure, and which you must be content to treat as in a work of art.

"Unless you have faithfully mastered the particulars of the situation you will only mislead. You had better have left the subject alone. Orestes killed his mother. If that were all we knew, he was a monster, but that mother had killed his father, and judgment is suspended into awe. You may say that in history the outward fact is all that we can know, and that insight into the heart is impossible. It may be so. It often is so. But when it is so no true history is possible. . . . Where we cannot have the real motive we may, if we please, invent false motives, and create a sort of spurious legend; but history it is not, and is so far worse than fiction, that it pretends to be truth.

"But how, you ask, are we to penetrate at all into the inner secrets of past times? How are we to understand the characters of men who lived long ago, under conditions so unlike our own, when the forms of men and things have grown visionary in the mist of distance? When they do melt thus into mist, be content to say so and leave them. I think it wrong to take the names of real men and draw pictures of them out of the imagination, as Raphael painted the Apostles.

"But something can be done, if not all. Remember, first, that in accounts of events which occurred in distant centuries you do not have the events themselves, but the events as reflected in the mind of the relator. Therefore, if you would understand a particular period study the original authorities. Go to the chronicles written by men who lived at the time and breathed the contemporary air. Drink at the fountain. The stream of tradition contracts always some alien matter from the soil which it flows through. Read, if you can find them, the letters and writings of the persons that you are concerned with. Read what they say themselves. Read what others who knew them said about them, and do not trust your own imagination. Take nothing at second-hand. The originals will always contain something which is lost in the translation or paraphrase. The language itself breathes the atmosphere in which it grew. Do not rest while any point which you can reach remains obscure. You will then find that the forms of departed things rise up and take shape before you. This is how Carlyle called up out of the world of shadows the real Cromwell; and the half enthusiast, half impostor, which had haunted our historical literature disappeared for ever.

"But such a method, you will say, involves immense labour.

What we want is a general notion of the history of at least our own island, and you tell us to give the labour of a lifetime to a single age. I can only say that the general notion you ask for will not be the history, but only the opinion of this or that writer about the history; and each succeeding generation will provide what it needs of this kind for itself. But I am speaking to genuine students. Try the plan which I set before you, and you will see that one such effort successfully made will shine like a lamp in the past, and will illuminate other objects besides itself.

"But without dwelling upon this, I will mention a long forgotten suggestion of my own, made when the school of modern history was first established in this University.

"Like my predecessor, Dr. Freeman, who along with his asperities had strong masculine sense, I have a high respect for the method of study pursued here before the modern changes. For men who wished to improve themselves I believe it to have provided as good an education as was ever tried. We had certain books, the best of their kind and limited in number, which we were required to know perfectly. We learnt our Greek history from Herodotus and Thucydides, our Latin history from Livy and Tacitus. We learnt our philosophy from Aristotle; and it was our business to learn by heart Aristotle's own words, weighing every one of them; and thus the thoughts and the language of those illustrious writers were built into our minds, and there indelibly remain. I asked myself whether there was any book on English history which could be studied with the same exactness. The *Chronicles* were too loose in their composition. They were to be read, but were insufficient. The famous modern writers, studying the past as we study the stars from a moving platform, were being continually corrected from a change in the point of view, and the shifting of lights and shadows.

"I had myself occasion to examine the early English Statutes and the Rolls of Parliament, and it struck me that in these compressed and pregnant Acts, where there is no verbiage and every word has a meaning, there was something like what I was in search of. You could not gather from them a continuous narrative, but you had fixed points all along of clear and brilliant light. Merely to be able to construe and explain the old Norman French and the technical Latin would require considerable attainments. Add to this a knowledge of the *Chronicles* and other outside sources, a knowledge of the occasion when each of the Statutes was passed, and you would have an authentic bony structure round which you could build up things themselves instead of the wilderness of talk about things in which students have so often to wander. Extracts from this or that Act are not enough, for the object is to obtain an insight into the thoughts of the time. In the Statute Book the student would be fed from the spring, and would learn his history as we learnt our philosophy—from the *Ethics* and the *Organon*.

"I was unconnected with the University, and the suggestion was not taken up. But I still believe that it would be worth trying. I still believe that the Acts of the English Parliament down to the Reformation contain the truest history of the country that we have. Whether it can be put in practice others and not I must consider. The examinations are conducted by able and experienced men who can judge far better than I can do what methods should be followed. I am myself too old to make experiments, even if I had a right to make them, which I have not. I can merely say that in such contributions as I have made myself to the history of the sixteenth century the Statute Book has been the backbone of my work. If the statesmen who drew the Acts of the Reformation and the Parliaments which passed them into laws were the sycophants and cowards which we are generally told that they were, what I have written is worth nothing. If they were honourable men, as I believe that they were, there will be found in their own stately language a sufficient and true explanation of each successive step in the change. Anyway, I acted myself on the principles which I have recommended. The Statute Book gave me the skeleton of my figure. The flesh and sinew were laid on entirely from contemporary authorities. From the time that I began to investigate I read little of what had been written on the subject by modern historians, and I have read little since. I did not wish to be confused with other people's conjectures—I went to the sources and to the sources only. I do not wish to boast of my own labours. I have never said much about them, and except on this one occasion, when there is a reason for it, I never shall. But I say for myself now that during the twenty years for which I was at work on my *History of England* I must have read, made extracts from, or copied with my own hand tens of thousands of manuscripts, private letters, secret State documents, minutes of secret councils, often in cipher for which a key was not always at hand. I worked long in our own Record Office. I worked in the Archives at Paris, Brussels, Vienna, and Simancas. The letters which were of most importance were in half a dozen languages and in the desperate handwriting of the period. Eminent men in that age thought it—like Hamlet—a baseness to write fair. Often at the end of a page I have felt as after descending a precipice, and have wondered how I got down. I had to cut my way through a jungle, for no one had opened the road for me. I have been turned into rooms piled to the window-sill with bundles of dust-covered despatches, and told to make the best of it. Often I have found the sand glittering on the ink where it had been sprinkled when a page was turned. There the letter had lain, never looked at again since it was read and put away.

"I have been taunted sometimes with having mistaken a word. It is likely enough—with such materials an occasional mistake is not to be avoided. But I think I made fewer than a great many people would have done. Philip II. wrote a worse hand than any other man in his vast dominions. I found at Simancas a sheet which he had scrawled over, and I knew it to contain secret matter of consequence. I called in the clerks in the Archives. Their best hands were turned on. We gave in our various conjectural versions, and I believe the most nearly correct was found to be my own. Be that as it may, I can say with confidence that I added many material facts to the history of the period, though they have been totally unrecognised by most of my critics. Being omniscient already, I conclude they did not feel that they had more to learn.

"Like St. Paul, I may say I laboured more abundantly than they all. Like St. Paul, I say also I speak as a fool. Enough of this. Others hereafter may go over the same ground and gather off it a richer harvest than mine, but I am sure that of the sixteenth century no accurate knowledge is to be obtained in any other way. It was an age of collision between mighty forces, now encountering on the surface, now coiling in subterranean conspiracies; where the best men were uncertain of their duties, where foresight was impossible, and princes consulting their wisest advisers received answers the most opposite; worst of all, where none knew whom to trust.

"Printed contemporary documents are precious, but the actual handwriting of remarkable statesmen has an instructiveness of its own. You see the bold strokes and unblotted lines where thought flows free and purpose is fixed. You see in erasures or corrections the hesitation or intentional deceit. There are the open instructions to the secretaries to be transcribed with the intention of misleading. There is the private draft of the ciphered sheets attached which tell the whole truth. The elaborate ciphers themselves were a chief part of a politician's trade, and require a special study. We are all fond of our peculiar methods, perhaps too fond, but I can afford to be amused with the airy verdicts of self-confident critics.

"In conclusion, I have only to add that, if I am to be of any use in my present office, I must follow my own lines. I cannot at my age work in harness with the athletes of the new studies. All that I can do will be to interest students in aspects of their subjects which lie apart from the beaten roads. I cannot teach a philosophy of history, because I have none of my own. Theories shift from generation to generation, and one ceases to believe in any of them. I know nothing of, and I care nothing for, what are called the laws of development, evolution, or devolution, extension of constitutional privileges from reign to reign, to end in no one knows what. I see in history only a stage on which the drama of humanity is played by successive actors from age to age.

"The problems which mankind have had to solve for themselves have been various and intricate, but none more intricate than those which rose with the religious convulsions of the sixteenth century. It was a time when the wisest and best were divided on the course which duty required of them, when opposite principles, each admirable, were forced into conflict, and saints and heroes were found in the opposing armies. The portraits of some of these persons I shall endeavour to bring out indifferently whether they were Protestant or Catholic. Priam and Hector are not less beautiful to us because we admire Achilles and Ulysses. To myself the object of history is to discover and make visible illustrious characters, and pay them ungrudging honour. The history of mankind, says Carlyle, is the history of its great men. To find out these, clear the dirt from them and place them on their proper pedestals, is the function of the historian. He cannot have a nobler one."

VII

DISCUSSIONS

ADMISSION TO COLLEGE BY CERTIFICATE

The University of Minnesota

For many years it was the custom of this university to admit students upon examination only. No certificates whatever were accepted. If a student wished to enter the junior class he was required to pass the examinations for entrance, and then the subjects pursued by the freshman and sophomore classes.

During the past few years there has been a radical change in regard to accepting certificates. At the present time certain certificates are accepted unconditionally. Graduates of the Minneapolis and St. Paul high schools are admitted to the freshman class, without conditions, upon the presentation of their diplomas. Graduates of the Minneapolis academy and first-class high schools are admitted upon the certificate of the principal or superintendent of such schools—subject only to conditions in such subjects as the student may not have had, but which are essential to the successful pursuance of the course chosen by him upon entering the university.

As a rule, the marks of graduates of normal schools or schools which admit to the freshman class of other reputable universities, without examination, are accepted by us for entrance to the university. But the faculty reserve the right to require a student to take supplementary examinations if he does not sustain himself creditably in his course.

As to accepting marks from other colleges for credits in the university course proper, we accept marks from all reputable colleges just so far as they cover, or are an equivalent to, the work done in this university. In bringing marks from other institutions the cerificates must show:

1. The subject studied; if a language, the work read, etc.; 2. The time spent upon each subject; 3. The result; it is sufficient to state that the subject was passed.

The high schools of Minnesota are under the supervision of the State high school board, consisting of the governor, the State superintendent of public instruction, and the president of the university. The president of the university is the examiner of the board, and all three members of the board are also members of the Board of regents of the university; this brings the high schools of the State into very close connection with the university. Examinations are held twice each year and certificates are issued to each student in the subjects that he passes. These certificates are accepted by the university in lieu of entrance examinations in the subjects which they represent. Of the applicants for admission to the university this fall less than twenty took the examinations and less than ten entered upon examinations only. About thirty were admitted on State high school board certificates and the remainder—over two hundred and fifty—were admitted on certificate of graduation from approved schools.

Our experience has been decidedly in favor of the certificate system. We find that our freshmen are better prepared for their work, and with the worry of entrance examinations and conditions removed they do better work in the university. The system itself has a very strong tendency to cause students to secure better preparation before entering the university. Most students are willing to spend a year extra in the high school if they know that their diploma will admit them to the university without conditions.

When students bring marks from schools outside of the State whose standing is at all doubtful, we require them to take an examination in some of the more important subjects, and if they do well in these subjects we accept their record for the remainder.

To sum up the whole matter in few words—our experience has taught us that the advantages of this system are: 1. It raises the grade of the preparatory schools; 2. It gives us students better prepared for university work; 3. It does away with an immense amount of work and worry incident to examinations; 4. It gives us better results from the student when he is once in the university.

It has no drawbacks at all commensurate with its advantages. It has been seldom that we have had cause to regret our action in any particular case, and it is safe to say that not a member of the faculty of this university would go back to the old method of examination for all cases.

CYRUS NORTHROP

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Amherst College

At the request of the editor of the REVIEW I send this statement of our experience with admission to college upon certificate.

Amherst College admits students upon certificate because it is the mature conviction of the faculty of the college that a conscientious and capable teacher, with whom a student has worked for two years or more, if called upon to fill in a blank certificate providing for detailed statements of work done by the student in each subject required as preparatory to the college course, can estimate the preparation of the student, upon the whole, as accurately as can the examiners at the college after the tests of an ordinary entrance examination. And while there is always the possibility of an overestimate of a student's fitness for entrance, in the principal's desire to gratify the student or his friends and to make a gratifying report of the number of students sent on to college, another tendency serves as a counterpoise. The better preparatory schools, as a rule, prefer to retain students until they are thoroughly prepared; and since it is the regulation at Amherst that if one or more poorly prepared men are recommended by a school, that school will be dropped from the list of institutions whose certificate is accepted, we find that the system needs no additional safeguard.

Two dangers attend admission by certificate. The first is that a college will accept a certificate from schools where the standard of work is not sufficiently high to warrant the admission of students who have completed the course of study. The second danger is that, through pressure from students and parents, the conscientious conviction of the teacher may give way to the student's desire to enter college as soon as possible, and certificates may be given to students who are not properly prepared. Against both these dangers the system which we have adopted seems to act as a safeguard.

First. Amherst admits students upon certificate only from schools that have been proved capable of doing thoroughly good work. We began with a small list of the best schools, which had been sending thoroughly well-prepared students to Amherst from year to year. This list has been enlarged chiefly upon the application of schools that wished the privilege of sending students to Amherst on certificate; but in the State of New York the privilege has been offered to certain schools which did not apply for it, but which had been proved by the statistics of the Regents' office to be doing thoroughly good preparatory work. A few schools in Michigan, also, which are visited and approved by the University of Michigan, have been placed on the Amherst list.

When a school applies for the privilege of sending students to Amherst on certificate, a letter is sent, asking the principal to submit to a committee of the Amherst faculty the course of study of his school, and to prepare and send a list of the names of students who, within the last five years, have proceeded to college from his school, together with the names of the colleges which such students have entered, and any facts he will give regarding the record made by these students at the colleges they have thus entered. If the committee of our faculty regard these facts as sufficiently favorable the school is placed upon the list of institutions from which Amherst will receive students "on probation," without examination.

Second. The essential safeguard for the scholarship of the college lies in the clear and full understanding, explicitly stated in each case, that every student received upon certificate from a preparatory school without examination is liable to be dropped from his class at any time during the freshman year if his work is not entirely satisfactory. The preliminary correspondence with the school makes this very clear. It is explicitly stated to all schools and to all students interested. It is our custom to drop students from the freshman class each year as they prove themselves incapable of doing the grade of work which is required.

While we have not carefully compared the rank of men admitted to college on certificate and on examination, I think the general opinion of our faculty is that, with the safeguards I have indicated, the scholarship of Amherst has not suffered and is not likely to suffer by this substitution of the mature judgment of the teacher who has prepared the student (a judgment subject to revision by the faculty if the student's work does not prove to be satisfactory in the college) for the old system of entrance only after examinations at college.

Of course the scholarly standards of the faculty of a college will decide how much of meaning shall attach to the word "probation" in this system. With us, at Amherst, it has a very perceptible and a distinctly tonic force.

This year Amherst has admitted nearly 160 new men; and a careful consideration of the relative rank of these new men, after several weeks of work at college, shows no perceptible difference in favor of those who enter on examination as against those who enter on certificate. In fact, the good effects of rejecting applicants and of dropping the men from the freshman class whose scholarship was lowest last year, are to be clearly seen in the remarkably high average of preparation in our present freshman class.

MERRILL E. GATES

AMHERST COLLEGE,
AMHERST, MASS.

VIII

REVIEWS

Minerva. Jahrbuch der gelehrten Welt.—Herausg. v. Dr. R. KUKULA und K. TRÜBNER. Zweiter Jahrgang, 1892–93. Strassburg: Trübner, 1893, pp. 827. Price, $2.10.

Hochschul-Nachrichten. Monats-Uebersicht über das gesammte Hochschulwesen des In- und Auslandes.—Herausg. v. Dr. PAUL von SALVISBERG. München, Verlag der Akademischen Monatshefte. Price, per annum, M. 4.60.

The interest felt in Germany in the higher education has of late years sought additional expression in various periodicals devoted chiefly to news about the universities of Germany and those organized on a similar plan. The *Akademische Monatshefte* began to appear at Munich in 1884; at Freiburg (Baden) a sheet called *Akademische Blätter* was started about four years ago, which was at first intended to be an organ for the students of that university, but its field was soon extended, first to Heidelberg, then to other universities; the undertaking, however, was not well supported, and the infant periodical fell into a marasmus which soon proved fatal. The last two years have seen the birth of several similar enterprises of wider scope, and fortunately of more vigorous vitality.

In a very neat, attractive, and handy volume, of 827 pages, adorned with a capital portrait of Theodor Mommsen by way of frontispiece, the editors of *Minerva* have compressed an astounding amount of valuable information concerning the universities, academies of science, libraries, and observatories of the whole world, which everyone who knows the difficulty of getting such information in completeness (and who that has attempted this has not keenly realized the difficulty of doing it?) will hail with delight. What hitherto had to be sought for, with infinite labor, in the most various handbooks, catalogues, registers, etc., is here presented in compact form, with an indication of more exhaustive works for him who seeks additional details; and substantial correctness is vouched for by the personality of the editors and their collaborators of different nations, among whom Professors N. M. Butler, C. R. Lanman, and B. I. Wheeler receive grateful mention.

The first volume of *Minerva* (1891–92) was confined to the universities of the world. In the preface to the second volume the editors state that the admission of other learned bodies, libraries, etc., to their pages is due to suggestions from many quarters. Certainly the addition has greatly enhanced the value of the work. The first twenty-six pages contain concise accounts of the constitution of the universities and other institutions for the higher education in the German Empire, Austria, France, Italy, Spain, Holland, Scotland, Sweden, Russia, and India. Similar information is not given in like form concerning England and the United States of America, but separately, in the second part of the work, for Oxford, Cambridge, Durham, and London, and for the more important universities and colleges in this country. As these accounts are not to be reprinted in the editions of subsequent years, the present volume will form, in this respect, a more or less permanent work of reference. For many readers this will prove the most valuable part of the book. The peculiar organization of the French system of higher education is especially well described. It is much to be hoped that in a future issue a similar account of the organization of higher education in America may be given; I doubt if even all the separate descriptions of American universities and colleges which the volume contains would give a non-American (or perhaps even an American) reader a clear conception of these Protean institutions.

The remainder of the work is taken up with an enumeration, in alphabetical order of situation, of the universities, polytechnic schools, schools of forestry, mining, and agriculture, independent libraries, academies of science, and observatories of the world. For European countries it was of course not difficult to draw the line between institutions that should and those that should not be included in the list—in fact, the line had been already drawn for the editors by the various governments. For America, on the contrary, the task must have been a thankless one; so far as the writer is able to judge it has been performed with no little skill, and manifestly the inclusion of every so-called college or university in these United States would have swamped the book. Those which have been admitted are sufficiently various in character, aims, and government to afford some idea of the extraordinary diversity here prevailing. The data given for each institution includes its history (often—as, *e. g.*, under the titles Bologna, the Cambridges, Oxford, Paris, Prague—these brief summaries are of the greatest value for an understanding of the development of university organization in general), its pecuniary and other resources, its expenditures, the composition and *personnel* of each faculty, and any peculiarities of constitution not covered by the general accounts in the first part of the book. Thus under the head of Tübingen is given a brief description of the *Stift* and the *Konvikt*, as they are locally called—the only near approach, except in the faculties of Roman Catholic theology, to the "dormitory system" to be found in German universities. The register of the names (over 18,000!) mentioned in the book will prove a great convenience. Type and paper are better than one is apt to expect in a German book. The psychologist Hugo Münster*berg* is fortified into a *-burg*, and the Harvard college-year is made to close at the end of Ju*l*i instead of Ju*n*i, but on the whole misprints seem very few. The text is too closely printed to be altogether pleasant reading, but this is compensated for by the handiness of the volume, which would have become unduly bulky if the type had been leaded.

The editor of the *Hochschul-Nachrichten* aims to present rather the current news of the university world. This periodical appears at the end of each month except September; each number contains not only very many news items of interest from universities all over the globe, but also articles, original and borrowed, on matters connected with the higher education. Thus the issue of April 26, 1892, brings a valuable article, with exhaustive statistics (partly corrected in the number of June 26), on the *Privatdocenten* of German, German-Austrian, and German-Swiss universities; the issue of July 26 reprints a notable editorial of the *Vossische Zeitung* on the question of establishing an obligatory examination in the middle of the university course; that of August 26 has an article on the educational system of Australia. The numbers which appear at the end of each German semester (*i. e.*, those for February and March, July and August) contain announcements of the courses of lectures for the ensuing semester at all the German-speaking universities.

E. D. PERRY

COLUMBIA COLLEGE

A French Eton, or Middle Class Education and the State: to which is added **Schools and Universities in France.**—By MATTHEW ARNOLD. London and New York: Macmillan & Co., 1892, pp. 416. Price $1.75.

It is a little late in the day to review Matthew Arnold's charming and forceful writings on education; yet this new edition of two of his best educational papers ought not to pass unnoticed. A reason for this is readily found not alone in the fact that the essays are themselves literature and as such eminently worthy of a new dress now and then, but in the essential weakness and waste of secondary education in England and America when compared with that of France and Germany. One of Mr. Arnold's main objects in all of his labors for education was to bring about the improvement and proper organization of secondary education in England. In the United States we are moving forward in this direction with a speed which, if not entirely satisfactory, is still encouraging. In England but little has been accomplished toward the fulfillment of Mr. Arnold's ideals; but there is every evidence that in the near future a long step in advance will be taken. Only a few weeks ago Mr. Acland, England's Vice-president of the Committee of Council on Education, speaking at Birmingham, referred to Mr. Arnold's labors, and pointed out that England's deficient municipal organization was to a great degree responsible for the unorganized condition of secondary education. The public school of the people, whether elementary or secondary, said Mr. Acland, must rest upon the municipal organization of the country. This excuse, however valid it may be for England, cannot be urged in the United States. We have municipal organization galore; but we lack, as a people, profound convictions on the subject of higher education and an accurate knowledge of the best European experience.

American educationists can say truly with Mr. Arnold (p. 69) that they have no pet scheme to press, no crotchet to gratify, no fanatical zeal for giving this or that shape to the public establishment of our secondary instruction. With him, they only wish to give secondary education a wider, a truly public character; this only the state can give. The example of Massachusetts in requiring the establishment of high schools in all towns having a fixed minimum population, ought to be followed by every other commonwealth. Nor is the mere establishment all. The secondary schools must follow in their curriculum and methods the highest educational ideals and the teachings of the best educational experience. They must be roused from their lethargy and their haphazard policy. This the organized teachers of the United States are now undertaking to do, and with every prospect of success.

As one turns Mr. Arnold's pages and sees how literature illuminates statistics and philosophy interprets history, he cannot but reflect how great a service to civilization men like Fichte, von Humboldt, Guizot, Simon, Arnold, and Morley perform when they turn their attention and their pens to the discussion of large educational questions. They are the lenses that focus the light and heat of the highest culture upon a small space, and they aid their fellows immensely in the difficult task of seeing and comprehending.

N. M. B.

Finger Prints.—By FRANCIS GALTON. New York: Macmallan & Co., pp. 216. Price $2.00.

This is Mr. Galton's latest monograph, and shares with its predecessors the interest and importance that attach to the author's acute observation and careful classification of physiological, psychological, and anthropological data. *Finger Prints* is a contribution to anthropology, pure and simple; but the points of contact between certain departments of this science and education are so numerous and important that the EDUCATIONAL REVIEW may with entire propriety call attention to the book.

The palms of the hands are covered with two totally distinct classes of marks. The most conspicuous are the folds or creases of the skin that indicate the lines of most frequent flexure. These seem to possess a remarkable significance for the followers of palmistry. The second class of markings, and much the less conspicuous, are the so-called papillary ridges. It is with these that Mr. Galton's book deals. As a result of his investigations it appears that these ridges form patterns, considerable in size and of a curious variety of shape, whose boundaries can be clearly traced. Curiously enough, they remain unchanged through life, and of all anthropometric data they afford incomparably the surest criterion of identity.

These lineations are readily recorded by a method that Mr. Galton describes in minute detail. Briefly it is this: The finger tips are inked and then pressed gently and firmly on a card prepared for the purpose. The result is a permanent record of the lineation. By photography or an enlarging pantograph the impression is magnified as much as may be desired, for purposes of measurement or comparison.

The persistence of these patterns is remarkable. Their proportions and specific measurements change, of course, with age, use, or bodily health. But the many bifurcations, origins, islands, and inclosures in the ridges that compose the pattern are almost beyond change. The evidence for this conclusion has been largely furnished to Mr. Galton by Sir W. Herschel, who has made use of finger prints for more than a quarter of a century in Bengal. Mr. Galton compared 700 points of reference in impressions taken from the same fingers at different times in life and found but a single instance of discordance; this was a ridge that was cleft in a child, but became united in later years.

The practical application of these facts is found in their great value for purposes of identification. Mr. Galton's opinion is that the Bertillon anthropometric method will have its power of identification multiplied many hundredfold by the inclusion of finger prints, because their peculiarities are entirely unconnected with other personal characteristics and do not change with the latter. He finds little or nothing, however, to connect finger prints with differences of race or temperament.

Any intelligent person can, with a little deftness, carry out Mr. Galton's experiments and perhaps procure information for him that he would be glad to use in his further investigations of the subject. Hundreds of prints of school children's fingers could readily be taken in a comparatively short time.

N. M. B.

IX

EDITORIAL

Nothing that Mr. Froude has ever written is more truly literature than his inaugural address, which is reproduced in full in the present issue of the REVIEW. Now that Arnold and Lowell are gone, Froude alone remains of the great masters of English prose. The subtle irony and quiet humor of this address, as well as its lofty moral and philosophical tone, will make it famous. Both in metaphor and in fact it is a kindly criticism and reproof of the present by the past. In it the spirit of old Oxford is speaking, and we feel that the ideals it holds up before us have been more or less set aside, temporarily, perhaps, by this bustling nineteenth century. Mr. Froude reminds us that the highest types of character are not necessarily the newest, and that ruder tools than ours have builded foundations for civilization that time has not destroyed. He is a humanist in the broadest and best sense, and we may well agree with him that when the humanities pass out of education or are lightly estimated, a loss of power and a moral downfall must surely follow.

It is worth noting that this Regius professorship of modern history is one of the most distinguished positions in the academic world. Founded by George I. it has been held within the memory of men still living by Thomas Arnold, Goldwin Smith, Bishop Stubbs, and Freeman, and now passes for a time to Mr. Froude. The Smith professorship at Harvard, which has been held successively by Ticknor, Longfellow, and Lowell, is the nearest approach in America to the great English university chairs with their succession of distinguished incumbents.

The first convocation of the University of Chicago was noteworthy in several respects. As an academic gathering it was remarkable for size and for its character. The enthusiasm was very great, and the oration of Professor von Holst—which will be found on another page—was worthy of the occasion. The University has now added to its corporate title the words "Founded by John D. Rockefeller." This is a fitting recognition of the generosity of the man whose gifts to this new institution are now approaching $4,000,000. For a gift no larger than this the name of Johns Hopkins is known wherever scholars gather together or scientific research is carried on. Happily the University of Chicago with all of its millions is poor, and if it is to fulfill the hopes and plans of its founders and its president, the present endowment must be trebled. That it will be trebled in good time, no one who knows the forces that are behind it can doubt.

But the oration of Professor von Holst has a significance of its own, quite apart from that of the occasion that called it forth. The orator is a German university professor, trained in the rigid school of German educational thought. He has been for many years a laborious and successful student of the development of American political institutions. So that he speaks with a twofold competence.

"There is in the United States as yet not a single university in the sense attached to this word by Europeans," says Professor von Holst. This frank statement will reverberate around the country and serve as a useful offset to the tabulated statements of our many score "universities" that appear from time to time in official reports and in the press. Yet, it may truly be said that we have universities nevertheless. Harvard has all of the four traditional faculties. Columbia has three of them and three others—too many, perhaps. Johns Hopkins has one and the beginnings of a second. Chicago itself has two. Perhaps Professor von Holst would call Columbia, Johns Hopkins, and Chicago "torsos of universities" and Harvard's university department an "after-growth figuring still to some extent as a kind of annex or excrescence of the college." From a German point of view he may be right. But it must not be too hastily assumed that the German point of view is the only correct one. Theorists of a certain impracticable sort insist upon calling the American college, even in its highest type, a *gymnasium*, but there is absolutely no ground for the assertion. Plenty of work that in Germany is relegated to the university is done in the American college. The truth is that the German educational organization is radically different from ours, and while we have learned and are learning much from European experience, our own system is a highly efficient and rapidly improving one. With us the elementary school, the high school, and the college divide among them the work of the *gymnasium;* the college and the university, again, divide the work of the German university. Our system is the more mobile, the more diversified, and the better adapted to our civilization. The conclusion is, then, that we are doing genuine university work in America, even though the form of its organization may not be familiar to the European eye. It is important, however, to keep insisting, as Professor von Holst does, that "the university has not only in the way of the college, to impart knowledge. It must also teach how additions to the treasury of knowledge are made." Training in methods of research is certainly the weakest point in American university education. On this point, rather than in matters of organization, Germany can teach us much. We shall not have the highest type of university in America until we appreciate fully the meaning of Virchow's sentence: Die Universität nicht bloss eine Anstalt zum Lernen, sondern auch eine Anstalt zum Forschen ist.

Another German professor of the first rank who has made his home in America—Hugo Münsterberg—strikes the same note in his paper on "The New Psychology," in the current issue of the *Harvard Graduates' Magazine.* Professor Münsterberg's thesis is that "only through special experimentation, and not through mere repetition of what others have already thought and accomplished, can we become men of science." But he admits that in Germany this principle has been exaggerated and that what is needed is "the combination of the American university system, which lays far too much stress upon instruction, with the German system of original research."

Mr. Karl Pearson, whose views on the subject of a teaching university for London seem to an American extremely sound, is discouraged at the immediate outlook. Writing in the London *Academy* on the subject, he points out that Mr. Gladstone's government, having only a slender majority at its back, is not likely to multiply its troubles by taking up disputed questions. There is, therefore, but little prospect of any progress being made this year or next. Indeed any progress at all that is not in the direction of a weak compromise, seems extremely difficult; for, as Mr. Pearson says, it is necessary at once to satisfy "the higher educational needs of London, the commercialism of some of the medical schools, the pragmatical claims of Convocation, the gubernatorial instincts of lay councils, and the Market-place demands of 'extension' enthusiasts." He is entirely opposed to letting the "polysynthetic opportunist"—a capital designation, by the way, of a type of mind that we meet with occasionally in American educational administration—have his own way, unchecked and unchallenged. This is undoubtedly a wise resolve. Not a compromise, but a right settlement of the matter is what is needed, even if it takes time for its accomplishment. An instructed public opinion will eventually insist upon something being done, and it may be best to frame a thoroughly good university organization and then compel the various conflicting selfish interests to take an assigned place in it or be crushed out. A careful and scholarly article by Dr. Fitch, to appear in the EDUCATIONAL REVIEW for March, will trace the whole London university movement in detail.

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In the EDUCATIONAL REVIEW for December last[1] an account was given of the admission of women to the Arts classes at the University of Edinburgh. In response to requests for further information it may be added that the Act of Parliament constituting the Scottish Universities Commissioners gave them power "to enable each university to admit women to graduation in one or more faculties, and to provide for their instruction." Proceeding under this authority, the commissioners put it within the power of each University Court to "admit women to graduation in such faculty or faculties as the said Court may think fit." It is also provided that "it shall be competent for the University Court, after consultation with the Senatus, to make provision for the instruction of women in any of the subjects taught within the university, either by admitting them to the ordinary classes, or by instituting separate classes for their instruction."

The practice of the several universities has not been uniform. As already pointed out in the REVIEW, at Glasgow the system

[1] IV: 518-19.

of separate instruction—the "annex" system—is followed. Edinburgh and Aberdeen, however, threw open the Arts classes to women, while St. Andrews admitted them to all the faculties, Theology, Medicine, and Arts. As a result there are enrolled at present at Aberdeen 11 women, all studying English literature. None of them, however, took the preliminary examination required of candidates for the degree. At St. Andrews there are 20 women, 12 of whom took the preliminary examination, four passing in all subjects. University college, Dundee, which is affiliated with St. Andrews, has 18 women on its rolls.

The tide is rising rapidly around those who still refuse to accord to women university privileges. The Johns Hopkins university will open in October next a medical school of the highest grade, to which women will be admitted on precisely the same terms as men. This is assured by the recent gift of Miss Mary E. Garrett, of Baltimore, of $306,977 to complete the endowment of the school. Miss Garrett has previously given $47,787.50 to the same fund, so that her total contribution is more than $350,000.00.

The main conditions of this munificent gift, which the trustees have accepted, are that the medical school shall require a preliminary college training for admission, that the course shall be four years, and that women shall be admitted on equal terms and conditions with men. The school will therefore be on the highest possible plane, and the opportunities for the scientific study of medicine both for men and women will be correspondingly increased. The opening of this school marks the formal addition by the Johns Hopkins of a university faculty of medicine to its distinguished faculty of philosophy.

That women are ready to take advantage of university education when it is open to them, is shown by the catalogue of Yale university for 1893. Although this is the first year that women have been admitted, 22 of the 125 graduate students are women. The foolish theory that the presence of women in a university will drive away the best class of men, is a vagary without a particle of evidence to support it.

The general subjects for discussion at the educational congresses at Chicago, in July, have been announced by the committee appointed by the National Educational Association for the purpose. They will be found very interesting and truly international in scope. Some of the most significant topics are those dealing with the proper limits of secondary education, the supervision and training of teachers for secondary schools; the precise function of the college, gymnasium, and lycée, in view of the increasing demands of elementary schools, technical schools, and universities; the amount of specialization appropriate for college work; academic degrees; professional training of teachers.

The work of the philosophical congress has also been carefully outlined by the committee of college professors appointed for the purpose. This congress will assemble on August 25, and hold both general and section meetings for five days. The more special and technical papers will be relegated to the section meetings. There will be five sections: (1) psychology, including experimental psychology, (2) logic, (3) ethics and æsthetics, (4) metaphysics and the philosophy of religion, (5) history of philosophy in detail. At the general sessions of the congress three sets of papers will be provided: (1) papers discussing the relation of philosophy to the special sciences and to civilization, both at the present time and in the past, including the history of those relations; (2) reports on the present state of philosophy in the various countries of the world, including particularly the status of philosophical study and instruction at the universities and other institutions of learning; (3) independent papers of a representative nature on philosophical questions of general interest.

It is entirely evident that Mr. Andrew S. Draper has arrived in Cleveland as superintendent of schools, despite the alleged humorous allusions to his continued residence at Albany. A recent circular concerning the promotion of pupils, issued over his signature, and an admirable pamphlet on courses of reading for teachers, bear witness to the fact. The rules for promotion are first-rate and are based upon the sound principle that daily work in the class room, and not merely proficiency at a stated formal examination, is the best test of a pupil's capacity for advanced work. There is also included in these rules an excellent provision that "with the approval of the principal, any teacher may, at any time during the year, promote on trial to the next grade any pupil who is specially proficient, and who seems able to do the work of that grade." Mr. Draper adds that bright pupils must not be kept "marking time," waiting for others to come up.

In this sentence he strikes at one of the greatest abuses of a graded system of schools. Too often the superintendent and the principal conspire to hold back pupils for the sake of preserving the symmetry of the "system." Intolerable waste of effort and loss of time result, and not infrequently the pupil who suffers in this way is withdrawn from school. Commissioner Harris is entirely right in insisting that the half-year promotions are too far apart. A capable child should be promoted just as rapidly as possible, and in no case should the stated promotion periods be more than ten or twelve weeks apart.

Commissioner Harris has been debating this very point with Mr. Henry Sabin of Iowa in the excellent school journal conducted by the latter gentleman. But it appears that Mr. Sabin and his Iowa correspondents miss the point that Dr. Harris is urging. He insists, and rightly, that in any given subject a proficient pupil should be promoted at intervals much less than those now common in the rural, or even urban, schools. Mr. Sabin replies that in Iowa pupils in the rural schools are classified according to their proficiency in the several subjects taught, and that it is not the custom to put a pupil in the same grade in all subjects unless his proficiency warrants it. This is, of course, excellent so far as it goes; but Dr. Harris's point as to frequent promotion in any given subject, is not answered by it.

The growing tendency of city superintendents to cease being mere statistical machines, and to offer direct instruction and stimulus to their teaching corps, is evident. Not only Mr. Draper's work, just referred to, shows this, but many other superintendents are pursuing a similar policy. In Philadelphia, for example, Mr. Brooks, following his predecessor's example, has issued an elaborate syllabus of a course in pedagogy for the use of his teachers. The day of the superintendent who inspects only without instructing, or instructs only without inspecting, or receives reports only without either instructing or inspecting, is nearly over.

About this time of year there is always more or less general interest in the workings of the New York city school board. In November the new members are appointed, and in December the board states its plans and needs for the coming year to the financial officers of the city and gets its annual appropriation. Then in January the "ring" engages in its usual contest to control the presidency, and through it the important committees, of the board. No mayor in recent years has been both willing and able to turn out the present leaders and substitute for them men of high standing and broad views, who have neither personal nor political ends to serve. Mayor Hewitt tried to do this five years ago, but nearly everybody that he approached declined an appointment, and finally he named some persons who have turned out as badly as possible. These worthies always sneer at outside—and even inside—criticisms and suggestions, and continue on their own self-satisfied way to the grievous injury of the great school system of the metropolis. Every once in a while one of the daily papers prints an article or two on the subject, but most of the journals are subject to the same influences that control the board itself, and therefore no general education of public opinion is possible.

What is to be the end of it all, is a question frequently asked. It is extremely difficult to answer. Some day, perhaps, a happy accident may put some one of the really strong men now in the New York schools in a position of sufficient power and responsibility to effect a change. Some day, perhaps, a mayor may be in office who will make proper appointments to the school board. Some day, perhaps, an unusually intelligent and discerning legislature will sweep away the complex and complicated system of ward trustees and inspectors by which responsibility is divided and concealed and behind which abuses flourish like a green bay tree. Just now, however, a new president, who is said to be out of favor with the persons who have hitherto largely controlled matters in the New York board, has been elected, and he is busy telling the newspaper reporters that many important reforms are to be begun at once. This is encouraging, and on that account the new administration merits sympathetic watching.

It is certain that far-reaching changes would be hastened if the present legislature will pass the bill, warmly advocated by ex-Superintendent Draper and Superintendent Crooker, for a commission, planned after the royal commissions of Great Britain, to investigate and report upon the whole educational system of the State. The city and village superintendents are practically a unit in support of this measure, and the chances of its adoption are understood to be favorable.

One long step in advance has, however, been taken in New York within a few weeks. The persistent missionary and pedagogic zeal of the New York Kindergarten Association, with Richard Watson Gilder at their head, has succeeded in committing even the present school board to the introduction of kindergartens, and $5000 has been appropriated for the purpose. The sum is small, but it is enough to make a beginning. The movement will grow, and its influence must be felt in time in the upper grades of the schools.

It may be doubted whether in any other State there can be found, among the leading teachers, such a consensus of opinion upon the chief points of educational theory as in Indiana. There is diversity of opinion, plenty of it, upon details of pedagogical practice, but upon main lines there is substantial agreement. Especially is this true of the teachers in the elementary and secondary schools. The representatives of the colleges of the State are not so nearly at one. It is noticeable that among the latter there is wide divergence of opinion as to many fundamental principles. All this was strikingly apparent at the annual meeting of the State teachers' association which convened at Indianapolis during the holidays.

The meeting was well attended, but owing to the many sections into which the general organization has been divided, the number present at any one time did not seem to be large. The Indiana college association, and the Indiana Academy of Science, both organically distinct from the State association, held their meetings at the same place and time.

The annual address was delivered by Andrew S. Draper of

Cleveland, O., upon the subject, "The public schools and real life." It was a fine effort, and left a permanent impression upon the large and intelligent audience which heard it.

Some of the subjects upon which papers were presented before the general association were, "The relation of school training to good citizenship," "Scholarship *versus* professional training," "Present tendencies in education," "A plea for industrial training in the public schools," and "Should we have free text-books?" The leading papers were prepared by the best public school men in the State. All of them were able, and some were of an unusually high order of excellence. Several of the papers urged the necessity of more teachers having special professional training. The function and policy of the Normal school were heartily indorsed, and the superiority of the work of the Normal school graduate was fully conceded.

In the College association a paper was read advocating the concentration of all the forces of higher education in the State in one central university. The many small colleges scattered about over the State were condemned because their existence was attended with a very wasteful dissipation of educational energy. The discussion of this paper indicated a divided opinion upon the subject, as might have been expected.

Taken all in all the meeting was one of the very best in recent years. It was noticeable, however, that the representatives of the colleges were not inclined to mingle with those of the public schools. They seemed to hold themselves somewhat aloof, and when the meetings of their own organization were ended they left the city. This apparent indifference of college men toward public school problems provoked considerable unfavorable comment.

At the last moment several changes in the list of members of the several conferences on secondary education had to be made. The names as printed[1] should be corrected, as follows:

Latin: Professor John C. Rolfe, University of Michigan, instead of Mr. Comstock.

English: Professor Francis B. Gummere, Haverford college, instead of Miss Thomas.

Mathematics: Mr. Andrew Ingraham. Swain Free School, New Bedford, Mass., instead of Chancellor Chaplin.

Geography: Professor George L. Collie, Beloit college, instead of Mr. Frye.

[1] EDUCATIONAL REVIEW, V: 97–98.

Other Modern Languages: Professor Joseph L. Armstrong, Trinity College, Durham, N. C., instead of Professor Joynes.

Physics, Astronomy, and Chemistry: George Warren Krall, Washington University, St. Louis, Mo., instead of Mr. Peckham.

History, Civil Government, and Political Economy: Professor William A. Scott, University of Wisconsin, Madison, Wis., instead of Professor Folwell.

Principal Merritt of Helena and Principal Phillips of the Westchester (Pa.) Normal School were absent from the conferences on natural history and geography, respectively. They withdrew when it was too late to appoint substitutes.

All of the conferences were well attended and considerable enthusiasm was manifested over the probable favorable outcome of the work of the Committee of Ten. Their detailed reports are now being prepared and will hardly be ready before April or May. These reports will not necessarily be made public; certainly not before the Committee of Ten have considered them with great care.

Congress in July last passed an act authorizing and directing the Commissioner of Education to examine and report on the schools of the District of Columbia. For years past these schools, under the intelligent and devoted superintendence of Mr. Powell, have ranked among the best in the country. It is, therefore, probable that the Act in question was pushed through Congress by influences antagonistic to the present superintendent. Whether this surmise is true or not, the report of the Commissioner which has now been printed will be read with interest, as would a report by Dr. Harris on any system of schools. As a whole, it is very favorable. The schools are pronounced in a fair way to remedy such evils as exist, except in the single matter of a too rigid system of classification. The discipline is highly spoken of. Certain improvements in the normal training instruction, in the special supervision, in the grading and classification, and in the schedule of teachers' salaries, are suggested; but this would be the case probably in any large city. Superintendent Powell will have his hands strengthened in undertaking further reforms, by Dr. Harris' report, and so far from being an injury to him it will certainly be of marked benefit and assistance.

EDUCATIONAL REVIEW

MARCH, 1893

I

THE PROPOSED UNIVERSITY FOR LONDON

One of the principal educational topics discussed in England during the past year has been the reorganization of academic work in the metropolis. It has long been felt that the largest city in the world ought to have in it a great seat of learning; and that a London university, analogous in its scope and aims to the University of Berlin or of Edinburgh, or to the Academy of Paris, might reasonably be expected to find a place among the many institutions of the capital. In fact, the material for a university already exists. There are two great colleges—University and King's, and many smaller seminaries for general academic education of the most advanced type. There are the law schools of the Inns of Court, the great medical schools attached to hospitals, the College of Surgeons and of Physicians, the South Kensington Schools of Art and Science, and the City and Guilds of London Institute for practical science. But these institutions are isolated and unrelated. They are in no organic connection with a great university system, nor with each other. To many of the most earnest and enlightened friends of educational progress, this state of things appears to be anomalous and unsatisfactory; and among them there has been much discussion as to the best means of supplying a remedy for it.

There is, however, a well-known institution entitled the University of London, which, although it does not fulfill the purpose of co-ordinating and bringing into harmony the scattered intellectual resources of the metropolis, nevertheless discharges educational functions of high value and importance. It is in fact an imperial or cosmopolitan rather than an exclusively metropolitan university. As its history is a curious one, and as it has in the course of years assumed a character wholly unlike that of any university in Europe or in the United States, some details respecting its origin and development may not prove wholly unwelcome to American readers.

The desire to make the metropolis a great center of academic teaching has found expression in several ways ever since the time of Elizabeth. In that reign (1578) Sir Thomas Gresham established seven lectureships of divinity, astronomy, music, geometry, law, rhetoric, and physic, and provided a house in the city, and an endowment for the stipends of the professors. Stow, the annalist and antiquarian (1615), speaks of the three universities of Oxford, Cambridge, and London, and enumerates as the constituent parts of the third of these —the Gresham foundation, the divinity schools attached to Westminster Abbey and St. Paul's Cathedral, the Inns of Court and of Chancery, the College of Heralds, the School of Civil Law, and St. Paul's School, then newly founded by Dean Colet—as parts of a complete collegiate system "wanting nothing but a common government and the protection of an honorable Chancellor" to give to it the unity and repute of a great London university. Bacon in his *New Atlantis* sketched out the plan of a confederation of philosophers, who should devote themselves to the systematic investigation of the facts of nature, to the due trial, recordation, and classification of physical experiments, and to the business of research and learning generally. This however was only a vision, and no attempt was made to realize it in practice. But Cowley, the poet, whose imagination had been strongly impressed by Bacon's glowing description of Solomon's House, with its laboratories, its organized body of observers, and its hierarchy of teachers, inventors, and interpreters, sought in 1661 to give definiteness to the whole project, by putting forth a proposition for the advancement of experimental philosophy by means of a great college near the Thames, with a body of twenty resident professors, and with ample provision for teaching in science and in the liberal arts. The time of the Restoration was not, however, propitious. The great calamities which befell London in 1665 and 1666 turned the thoughts of her citizens in other directions, and Cowley's proposition dropped out of sight. It was not till the end of the first quarter of the present century that the desire for a metropolitan university assumed a practical shape. A great proprietary body was formed, mainly at the suggestion of the leading Whig statesmen, such as Brougham, Lansdowne, and Russell, and of literary men, including Campbell, the poet, and with their help the building now known as University College was erected, and designated, somewhat prematurely, the London University. Before, however, it could become entitled to that name, it was necessary that it should obtain a Royal Charter empowering it to confer degrees, and in the state of academic and political opinion then prevailing, the granting of such a charter was not an easy process, and was the subject of prolonged public discussion. The Universities of Oxford and Cambridge—at both of which religious tests were in force, practically excluding all but members of the Church of England—protested against the proposed university partly on the ground that it was injurious to the interests of the older corporations and unnecessary in itself, but mainly because it was designed to grant distinctions for learning alone, without reference to theological opinions, and thus to part with one of the securities which were by many regarded as essential to the maintenance of religion in the land. A new factor in the problem appeared when in 1829 King's College, London, was established by a powerful body of Conservatives and ecclesiastics, as an institution in which "instruction in the doctrines and duties of Christianity as taught by the Church of England should be forever combined with other branches of a useful education." The college was erected avowedly in rivalry with the so-called London University, and was designed to supply the religious teaching which that wholly unsectarian institution was precluded by its constitution from offering to its students.

The government, in 1835, solved the difficulty by granting separate charters to both colleges, recognizing each as one for academic instruction only, and at the same time calling into existence a new and independent body composed of eminent persons in literature or science who should be incorporated under the title of the "University of London," and who should be empowered to examine the students from the two great London colleges and from others which might afterward be added, and to confer degrees and honors on such students. Thus the functions of teaching and examining were intrusted to separate bodies; and as other colleges of repute in different parts of the country were from time to time admitted to the same privileges, the University of London became in fact, not exclusively a metropolitan institution, but a federal university, including in its scope many colleges in London and the provinces, leaving to them perfect liberty of teaching, but requiring all their students who wished to obtain academical degrees to present themselves at a common examination conducted, not by their own teachers, but by the Senate of the University.

This state of things remained unaltered for about twenty years. But experience showed that the tie which bound the affiliated colleges to each other and to the University was weak and ineffective, that the certificates of collegiate attendance, which were required by the University as a condition of admission to the examination for degrees, were given in very different ways, and possessed very different values in the various colleges, and that the University itself had no power to insist on uniformity of practice in this respect. The only functions which the Senate performed were those of framing regulations and of examining for degrees. It was admitted on all hands that this duty was well discharged, and that the University resolutely maintained a high—if not a severe—standard in its examinations. While, however, on the one hand, experience showed that the requirement of attendance at an affiliated college afforded no real guarantee of academic discipline, it became evident, on the other hand, that a large number of students whose knowledge had been acquired in other ways, from erudite parents or private tutors, or in smaller colleges, would greatly value the opportunity of submitting themselves to examination and obtaining recognition from the University in the form of a degree. Accordingly, in 1858, a new charter was obtained empowering the Senate to admit as candidates for graduation any other students than those from affiliated colleges, provided that they furnished the needful evidence of character. The Senate at the same time instituted intermediate examinations between that for matriculation and that for the degree of Bachelor; and in this way sought to take new securities for continuity of study, by way of substitute for the former requirement of collegiate attendance. From that time the Senate has been an independent examining board mainly, having no organic connection with the colleges, and influencing the business of teaching only indirectly, through its programmes and syllabuses of study and through its periodical examinations for degrees. But its influence has very largely increased, and it has done much to raise the whole standard of the higher education not only in colleges, but among privately taught students throughout the country and in the Colonies. In 1858 the number of candidates for matriculation was 299, and for the degree of B. A. only 72. But in the single year 1891 the number of candidates for matriculation had risen to 2889, for the intermediate examination in Arts to 619, and for the degree of B. A. itself to 401. The numbers in the several faculties of Law, Science, and Medicine have shown a corresponding increase; the body of examiners appointed by the Senate has included from time to time many of the most eminent scholars and scientific experts in the country; and the rigid impartiality and high rank of its examinations have secured for the University a large measure of public confidence. In particular its medical degrees are generally regarded as among the highest distinctions obtainable in the profession, and have done much to raise the standard of scientific education, and to encourage original effort and research. The University of London was the first British university to establish degrees in science, and it also has been distinguished from the older universities by the early encouragement it gave to the study of English philology and literature. An important step was taken in 1878 when the Senate obtained from the Crown permission to admit women to the examinations in all the faculties exactly on the same conditions as those which applied to men. No particular credit can reasonably be claimed for the University on the ground that it was the first academic body in the United Kingdom to take this important step. The older universities were necessarily more hampered by ancient charters and traditions, and were obliged to move more slowly. But Cambridge, Oxford, and the Scotch universities have since made substantial advances in the same direction; and in Cambridge especially, with which the two famous colleges for women, Girton and Newnham, are for all practical purposes incorporated, the whole advantage of university life and residence and the stimulus of the university examinations are now as accessible to women as to men. The opening, however, of all the London examinations to women, has exercised large influence, both direct and indirect, on all the principal institutions for the higher education of women throughout the country, and has probably given a healthy stimulus and much useful guidance to many other students than those who have actually presented themselves at the University examinations. During the thirteen years which have elapsed since those examinations were thrown open, 2225 women have passed the matriculation examination, 586 the intermediate and 334 the final examination for the degree of B. A.; 22 have obtained the degree of M. A., 58 that of Bachelor of Science, 25 that of Bachelor of Medicine, and 3 have advanced to the degree of Doctor.

In these and in many other ways the London University has come to possess a character and to discharge duties not contemplated by its original founders, and indeed not closely resembling those of any university in the world. It has become a great instrument for stimulating, guiding, and rewarding erudition and scientific and literary proficiency however and wherever acquired, whether in privileged schools and colleges or not. There is such a general consensus of opinion in regard to the value of this work and to the skill and fidelity with which it has been done, that no one seriously advocates any interference with it. But it is still true that London does not possess a real local university in the sense in which the term is generally understood; and there has of late been a strong movement of public opinion in favor of establishing such an institution. Eight years ago an influential association was formed with a view to improve academic organization in the metropolis. Its members urged that it was the business of an university to *teach* rather than to examine, and that except indirectly the London University did little or nothing to control teaching, or to bring into harmonious relations the most important agencies concerned in the higher instruction of the metropolis. In particular the professors in the great colleges contended that they had no voice in the councils of the University, that schemes and programmes of study were issued by an external authority and enforced upon all candidates for graduation, and that in this way the legitimate influence of the teacher in shaping the course of instruction and in setting before his students his own highest ideal was injuriously restricted. Finally, there existed among a large body of the foremost scholars and *savants* a strong desire for greater economy of teaching power in London, for more effective encouragement of the higher learning, and for the establishment of a more friendly and helpful *rapport* between the various institutions, now practically isolated, which control academic and professional instruction in the metropolis.

The first practical proposal to meet the want of a "Teaching University" originated with the two principal London colleges —King's and University—which, forgetting or laying aside their ancient rivalries, propounded a scheme for the establishment of a new university, to bear the name of the late Prince Albert, and to consist in the first place of those two colleges and the principal medical schools, although with power to attach in federal union other academical bodies from time to time. This new institution was to differ from the present London University, (1) in being locally confined to the metropolis, (2) in making regular attendance at collegiate lectures a condition precedent to the admission of students as candidates for degrees, and (3) in giving a substantial share in the government and in the general control of all degree examinations to the professorial or teaching body. In accordance with many precedents, the government of the day, when confronted with a problem of a highly intricate and technical character, had recourse to the advice of a Royal Commission, composed *ad hoc* of seven distinguished members of other universities, who after examining much evidence reported generally that the need for a teaching university in London was clearly made out, but that there was no manifest necessity for a second university. They suggested a plan whereby the existing body might continue to discharge its present imperial or non-collegiate functions, and yet meet the reasonable requirements of the London teachers by recognizing in their case systematic collegiate training as part of the requirements for an academic degree, and by according to the teachers a definite position and authority in the general management of the University. They concluded by advising the Crown that if the authorities of the University would consent to some such compromise, no new institution would be needed; but that if that course were not taken the establishment of a second or "teaching university" in London would be justified.

Some grave difficulties emerged into light when the Senate and Convocation of the University addressed themselves to the task of framing such a compromise as the Royal Commission had suggested. It was found that the various corporate and collegiate bodies which it was proposed to include in the University, though not unwilling to nominate representative members on its governing council, evinced no desire to part with their autonomy, or to submit to the control of any central body. Among the teachers and lecturers of the London medical schools there was a strong wish for such a change in the requirements of the University as would make the degree of M. D. easier of attainment; while among the existing graduates of the University there was a strong objection to any measure which would lower the standard of qualification. On the part of the numerous provincial colleges, which were accustomed to send up candidates for graduation, and on the part of private teachers generally, great objection was urged against this proposal to transfer the business of examination from the present perfectly independent and impartial Senate to the representatives of London colleges, whose interests it was contended were mainly identified with those of local institutions rather than with the general interests of learning. In effect, it was found difficult to formulate a scheme which would secure the unanimous approval of the Senate, of Convocation, of the London colleges, and of the provincial institutions. In these circumstances, the scheme of the two London colleges for securing a separate charter was revived, and under the amended title of the Gresham University, the Privy Council approved this scheme, and the government of Lord Salisbury expressed their readiness to support it in Parliament. The fuller discussion of the Draft Charter early in the year 1892 was, however, very unfavorable to its provisions. In the press, in Parliament, and in academic circles generally it was argued that the scheme was narrow and inadequate; that it was too diversely framed rather in the interests of two or three privileged institutions, than in view of the larger educational requirements of the metropolis; that it gave, in effect, too much power to the professors of those institutions to assess their own work; and, above all, that it called into existence a second university where one would suffice. These and other objections proved fatal to the Gresham scheme. It was withdrawn by the government, and a second Commission was formed, composed of representatives of the principal academic and professional interests concerned, to make further inquiries, and to report and make recommendations accordingly.

Until this second Commission shall have made its report it is impossible to say how this difficult problem will eventually be solved. The whole process, though it must seem dilatory to foreign observers, is somewhat characteristic of English habits and procedure in such matters. The foundation of a university is in this country a business of rather serious magnitude. It cannot be effected by a stroke of royal prerogative, nor by the munificence of a single citizen, nor by the action of a local authority. The multiplication of competing universities, each with the power of granting academic titles to its own students, has always been regarded by Englishmen as a danger to be avoided. The existence in the United States of nearly 500 chartered institutions vested with such a privilege may probably be of service in promoting educational activity, and in stimulating the appetite for higher knowledge. But it would be unsuited to the soil and traditions of this country; and in the opinion of scholars would tend to injure the true interests of the higher learning, and to lower the value of an academic degree. The general result of all the elaborate discussion which the whole subject of a Teaching University for London has received, appears to be that it is rather by the strengthening, enlargement, and reconstruction of the existing university than by the foundation of a rival university in the same city, that the true solution of the difficulty is to be found. It ought not to be impossible to maintain in full efficiency the larger and imperial work now so well discharged by that institution, and at the same time to associate with it the best and highest teaching agencies of the metropolis, to give to the ablest of the college professors a substantial though not a dominant influence over the degree examinations, to promote in many ways the interests of science and scholarship, and to do for London what the Sorbonne and the Collége de France do for Paris.

J. G. FITCH

LONDON, ENGLAND

II

EDUCATIONAL EXHIBITS AT WORLD'S FAIRS SINCE 1851, (II)

It would be very interesting to trace the development of the educational classification between 1862 and 1893, and then show how far its provisions have been carried out at each of the exhibitions held during that period. Although a single article cannot present the details of such an investigation, it may show how some of the important features of educational systems have been represented at different times. Official classifications are too complex to be useful as a basis for this study, so it is necessary to find a simple scheme of grouping exhibits that will give uniformity to the treatment of all the exhibitions. The outline used by Mr. Philbrick in 1878 will answer this purpose. It is as follows:

First, illustrations of educational buildings with their furniture and fittings.

Second, illustrations, and specimens of appliances and apparatus, excepting books for instruction and training.

Third, pupils' work—literary, scientific, mechanical, and artistic.

Fourth, educational literature, embracing all printed matter bearing on education, but especially text-books and books of pedagogy.

In a consideration of the first division the question at once arises: Of what use is an exhibit of schoolhouses? In the reports for 1873, Dr. Seguin discusses some aspects of this question and shows that it is only when models are presented to the mind with proper explanations that they are really of value. It is in doing this that the intelligent critic finds his opportunity for usefulness. He may be sent to the exhibition to explain the objects to spectators or to write a report on what it contains. In either case it is his business to interpret the exhibits in a way that will point out both the features that are typical and those that are not. It is inevitable that, where a schoolroom is removed from its surroundings, it should lose some of its significance. Was it a part of a large schoolhouse or did it stand alone? Was it in a crowded city or in the open country? Were the pupils from luxurious homes, filled with books and pictures, or did they find in this schoolroom all the intellectual stimulus they ever received? These are questions sure to occur to the mind of a thoughtful person who tries to get from the exhibition a picture of the school life it represents. In answering them he is aided by photographs of interiors and exteriors, of class rooms, and of laboratories containing pupils at work. By the use of photographs it is possible to represent educational systems and methods with great completeness. Photography has gained such perfection that every little detail of a scene can be faithfully reproduced. In the exhibit sent by the Westfield High School to Paris, in 1878, the methods used in teaching zoölogy, botany, and chemistry were shown in this way. One photograph represented a class studying the peculiarities of owls. A row of stuffed birds of different species was ranged along the teacher's desk. On the blackboard was a brief summary of the facts to be emphasized. Pointer in hand, the teacher was explaining the lesson, and two pupils near her were examining the birds to find the characteristics of which the teacher was speaking at the moment. The general appearance of the room, its furniture and apparatus for instruction, the alert teacher, the intelligent pupils, all were shown with wonderful distinctness.

In the plans for arranging exhibits in 1851, 1854, and 1855, there was no separate place for buildings or furniture devoted especially to education, but in the revised classification used for the Exposition of 1862 we find them assigned to a distinct class. The original plan had included a thorough exhibit of recent improvement in the plans of school buildings and in their furniture and fittings, but when the time came there was very little to be found in this department. Several models of schoolhouses were shown, but these, although complete in their way, were not typical of the average schoolhouse used in any one country; and so they were of little use for purposes of study and comparison.

There was a single model that deserved special mention, as it was one of the earliest evidences of what has now become a most important element in international exhibitions, viz., the attempt to interest the public in philanthropic work by exhibiting results already attained. This model represented one of the schoolhouses on the Philanthropic Society's Farm at Red Hill, near London, and was carefully executed.

There were many miscellaneous articles of school furniture from England, but other countries sent very little. France had no manufacturer who devoted himself entirely to the production of school furniture. Her local artisans built from designs which were good or bad according to the intelligence and training of the particular individual who made them.

In 1867 we again find that educational buildings are given distinct recognition in the official classification. There were shown only four rooms designed specially for educational purposes. These were sent by Sweden, Prussia, Saxony, and the United States. The contribution from Sweden was a primary schoolroom on the first floor of a house also used as the teacher's residence, a type of building quite common in that country. In the school building sent by Prussia the home of the teacher also occupied a considerable part. The Saxon schoolhouse was for instruction of a higher grade, was classic in design, and had no residence attached. The United States building was a cross-road schoolhouse, sent by the State of Illinois. There are in the reports several discussions of the comparative merits of these school buildings, the methods of lighting and ventilating them, and of seating the pupils, but the representation as a whole was so slight that a discussion based on that alone would have very little value.

The schoolhouse from Saxony was unfurnished, but in the other three buildings there was a great variety of school furniture. The Prussian was bare and uncomfortable, the pupils' benches being very long and lacking distinct boundaries to mark individual property. The teacher's desk, too, was without conveniences. On the other hand, the furniture from Sweden and from the United States allowed the pupils great freedom of action, as it gave each a separate seat and added many conveniences and even luxuries which were unknown to the Prussian.

Of the three exhibits of schoolroom furniture, the American was far the best, both for convenience, comfort, and neatness, and attracted the most attention.

The normal gymnastic school at Dresden made a very complete exhibit, including models of all the apparatus used, as well as of the buildings and grounds. It may be stated in this connection that there is scarcely a common school in Saxony and some other German states which has not a gymnasium attached.

In 1873 this department was represented with far greater completeness. Models, as well as schoolrooms of the size actually in use, were presented by a large number of countries, by cities, by school boards, and even by separate institutions. The United States built a representative school building such as may be seen in many rural districts of America. It attracted great numbers of people, and by actual count was visited by six thousand in a single day. It was completely furnished with school desks, teacher's table, harmonium, text-books, reference books, and all the accessories customary in the average American schoolhouse. The special features were the sash windows, allowing of more perfect ventilation with less danger to the pupils than is possible with the hinged windows opening inward, which are used in European schoolhouses; and curtains, which, as they could be pulled from the bottom up as well as from the top down, regulated the light with great perfection. It occasioned considerable criticism that the room was lighted on three sides, but on the whole this was recognized as a desirable feature.

In addition to the photographic views of various public institutions of America, including many of the magnificent asylums for the deaf and dumb, the blind, the idiotic, and the insane, there were architectural designs of public school buildings in St. Louis, in Washington, and in various Massachusetts towns.

Although very unsatisfactory because of the absence of many features that are typical of her schools, the United States exhibit was really the most important one. "In the center of the entire educational court there was a model of the Franklin School building in Washington, which was by far the finest thing of its kind in the whole exhibition." The Washington city architect had constructed this model at great expense, in such a way that it could be taken apart and minutely examined. The systems for lighting, ventilating, and heating, for providing for safety in case of fire, and also the arrangements for seating pupils, and providing for their convenience were all open to exmination.

In 1876 there were articles illustrating school architecture, including, among many others, models of the primitive log schoolhouse, the *adobe* of California, a rural district schoolhouse, and the Franklin School building in Washington. There were also articles illustrating school furniture and apparatus.

In the Belgian exhibit, the most notable part was a room for a primary school. It was sent by the Belgian government, and represented the type which government regulations require whenever new public school buildings are constructed. In the report of the United States Commissioners, there is a description of this building, and also a translation of the regulations in regard to it. The location, exposure, and extent of grounds and buildings, the mode of construction, interior arrangement, separation of the sexes, division of classes and dimensions of rooms, the arrangements for lighting, ventilating, and warming, and the rules about playgrounds, cloakrooms, lavatories, and airing places, are all prescribed with great minuteness.

Much to the surprise of everybody, France was not represented by anything which would come under this head, nor was Germany.

The exhibits from Great Britain and her colonies were extremely disappointing, those from Canada being the only ones at all satisfactory. The Netherlands, Norway, Sweden, Switzerland, Portugal, and Japan were partially represented.

In 1878 the showing of school buildings was very comprehensive, and supplied to the official reporters, and to all who examined them, the stimulus for many suggestive comments on school architecture and the problems connected with it. Belgium sent some very interesting exhibits in this class. Many of her schools were represented by plans and models of buildings, and by specimens of school furniture. One (which was established in Brussels by the Ligue de l'Enseignement in 1875) sent furniture and school materials and the accessories of every sort necessary to show a classroom complete in the minutest details. It was visited by great numbers of people who found that although its fittings were less comfortable and convenient than those of the United States, they were far above the average of those in use on the Continent.

Portugal showed photographs of some of her finest schools, and also sent a model of a school building that "seemed much like our familiar country schoolhouse."

Algeria sent very attractive models of school buildings and made a creditable display of pupils' desks and seats.

In the remarkable exhibit of Japanese education there were photographs, plans, and sketches of the buildings for imperial and public schools, and the grounds that surround them. "There was also a collection of models in wood, reproducing in the most skillful and beautiful manner many buildings, new and old, used for school purposes. Some of these were said to be ancient temples capable of accommodating a thousand persons, and were certainly picturesque and charming to the eye, however they may be found to serve for the convenience of schools." Pieces of school furniture of curious Oriental shapes also formed a part of this collection.

The exhibit of the United States in 1878 is described by Mr. Philbrick as follows:

"Educational architecture was represented, in the first place, by two well-made models—that of the State Normal School of Indiana, a fine edifice, and probably one of the best in the country, and that of the Henry Grammar School, in the City of Washington, which has some original features, but which represents very well the essential characteristics of the best grammar schoolhouses found in American cities.

"The wall display of educational edifices was composed of marked specimens without any repetition of similar types. Beginning with plans, and a view of the first Normal School building erected in the United States, that of the Bridgewater School, in Massachusetts, together with a view of the building as it now stands, with its successive enlargements and improvements typifying the growth of the normal school system in our country.

"The information respecting school architecture found in reports and books on the shelves of the exhibition was probably much more useful to educational investigators than the illustrations above mentioned. The custom which is so general in the United States of including in State and city school reports illustrations and descriptions, has done much to diffuse information on the subject, both at home and abroad. Our space would allow but a very limited display of school furniture."

At New Orleans in 1885 this section contained numerous plans, photographs, and models, illustrating American and English schools. Physical education was represented by a fully equipped Swedish gymnasium, sent from England, and also by an exhibit made by the United States Bureau of Education, containing three kinds of apparatus:

(1) Home gymasiums;
(2) Special kinds of apparatus;
(3) Instruments for taking anthropometric measurements.

In 1889 there were many interesting exhibits in this section. Belgium, Switzerland, Brazil, Argentine Republic, Japan, and England showed school architecture in the Department of Social Economy. Cost of construction and of maintenance, use of local materials, adaptation to climatic conditions, and the requirements laid down by sanitary science were all brought forward prominently. The Emperor Dom Pedro was awarded a Grand Prix in recognition of his efforts to introduce the best sanitary arrangements into the schools of Brazil. In the exhibits of school furniture, due almost entirely to private initiation, England took the lead.

Among the lesser exhibitions, two that have been held in London should be mentioned in this connection. The earlier, in 1871, contained the first attempt to show the progress of education in India. There was a model of the Aided School of Baikala, an "ordinary mat bungalow of Northern India" that seemed "to be no better adapted for a school than for a police station or a private residence." There were three wooden models of the Buddhist monasteries, where native boys receive a primary education, and also photographs of "the grander monasteries—built of teak timber, magnificently carved and gilded," and of many buildings intended for other purposes, but now used as schools. For furniture there was a "mat intended to illustrate the cheap and portable seat used by pupils in indigenous schools, price one penny, made of Palmyra palm leaves by the boys themselves." There were also clay models that showed in sharp contrast a government school with English forms and desks in charge of an active teacher, and two indigenous schools, one Mohammedan and the other Hindoo, "with the masters in a recumbent position, smoking."

The Health Exhibition, London, 1884, contained the latest and best devices for the building, fitting, and sanitary arrangement of schools, and for school decoration. A great many things relating to healthy conditions and surroundings in home and school were brought together at that time. There were also lectures and conferences on subjects suggested by these exhibits, and handbooks containing reliable information.

Physical education was fully represented, and a large amount of data collected to establish a "science of national health."

The second division (including materials and appliances for instruction, except books) has always been represented at international exhibitions, although not at first under the head of education. Manufacturers who wished to introduce certain specialties, such as physical apparatus, maps, charts, etc., gave them a place among other products of a similar nature. Their purpose was to sell their goods, or to demonstrate the superior value of their methods of manufacture. In 1851 geographical charts, maps, and models for design were considered simply as specimens of engraving; books were examples of the skill attained by typographers and binders and were judged for beauty of execution and for cheapness; and the toys exhibited by Germans and, to a less extent, by the French, were also classed under manufactures. Besides these things, there were shown materials, apparatus, and processes for scientific and philosophical research, and for use in the practice of engineering and the fine arts, and a great many other things whose educational significance had not yet been recognized in the arrangement of World's Fairs.

In 1873 the classes for education contained, for the first time, a comprehensive exhibit of materials and appliances. Objects shown by five thousand exhibitors, representing twenty different nations, were submitted to the jury on education. In addition to the representation of the industrial, manual training, and art schools already mentioned, and institutions for educating the defective and dependent classes, there were many examples of materials and apparatus used in the nursery, the *crèche*, and the kindergarten, and in primary, secondary, superior, and professional schools.

The United States Commissioners' report for 1873 says: "The educational exhibitions in the aggregate embraced every conceivable object used in giving instruction in every class of schools;" but "there were instances of total failure on the part of some of the great nations, and if Austria could be excepted, even the best of the representations were but fragments of what they might have been made with earnest and systematic effort on the part of the several governments."

This statement might be repeated almost exactly in discussing all of the subsequent exhibitions. Each time there have been added many new features, representing the improvements made in education during the interval, and also such parts of the systems of particular countries as were not represented before; but as a picture of educational conditions throughout the world no exhibition has been very satisfactory.

The third division (pupils' work, literary, scientific, mechanical, and artistic) has been discussed at considerable length already, as far as the mechanical and artistic parts are concerned. In the scientific part there have been students' collections of specimens and photographs, illustrating the botany, zoölogy, geology, and physical geography of different portions of the earth. There have also been volumes of written or printed essays prepared by students, describing their researches in physics, chemistry, biology, and other sciences, and also volumes containing work of an historical, economic, or literary character. In many cases these represented popular education. In 1876, for example, there were thousands of examination papers, compositions, and essays written by pupils in the primary, grammar, high, and normal schools of the United States.

M. F. Buisson, in a supplement to his celebrated report on the primary school system of America, presented several hundred examples of the pupils' work sent to the Centennial from a large number of rural and city schools. He describes this collection in a preface, from which the following is translated:

"This volume is not a book on the schools of the United States; it is a book written by the pupils themselves. He who will take the trouble to go over these pages, gathered from all parts of the Union, may, with good right, imagine that he makes a rapid voyage of inspection through these schools of the United States. He sees them here in certain respects more exactly than might be permitted to him in visiting them. He is present at the ordinary class exercises; he there surprises the secret of the methods in their daily application; he freely examines the productions of the pupils, he hears their confidences on the comings and goings of student life, and perhaps he learns from their mouths more than one detail that he did not know about the true state of the school, of the family, and even of American society."

At the Exposition of 1889 France showed pupils' work that represented a comparatively new feature of her system, viz., the preparation of monthly tasks in which the pupil tries to surpass not his classmates, but himself. These tasks, which are always filed for reference, afford a frequent test of the progress made by the student in his work, and also do away with the pernicious rivalries that are sure to arise in a class of students having very unequal abilities.

It is hard to make sure that the pupils' work shown has been prepared under normal conditions, and fairly represents the school from which it comes. For example, the work of Swiss pupils and teachers at the Exposition of 1889 was described in the jury reports as "too faultless to be genuine." The kindergarten teachers feel so strongly in this matter that they are extremely careful not to let the children get the exhibition idea. They ask them rather to prepare a monument to Froebel, or to some other worthy, and as this is an idea familiar to the child and in harmony with the kindergarten system, it secures an exhibit under perfectly normal conditions.

The fourth division (educational literature, embracing all printed matter bearing directly on education, but especially text-books and books of pedagogy) contains a great deal of material that is very important to the student of education. In 1862 there was in the main building a recess devoted to the exhibition of a collection of the most recent text-books and manuals employed in teaching. The entire educational exhibit from Russia that year consisted of a few books.

In 1867 there were text-books from the primer to the calculus and classics, schemes and reports of educational institutions of every grade and character, and copies of annuals published by educational societies, institutions, and states; fine art works from American publishers; a valuable series of publications upon science, art, medicine, and morals sent by the Viceroy of Egypt as specimens of typography from the government establishment, Boulac, Cairo; and books sent by the government of Hawaii as specimens of native publications in English and in the Hawaiian language. The United States Commissioner says of the latter: "They were curiosities, simply showing the mechanical march of letters into regions where education had scarcely penetrated. They had no claim to typographical merit."

In 1873 there were "school reports and reports of educational departments of State and national governments; published works on education: historical, pedagogical, and philosophic; and specimens of newspapers and other publications as illustrating the quality, variety, and quantity of the information supplied to the people through the medium of the periodical press and the publications of learned societies of every class, devoted alike to the advancement of knowledge and its diffusion among men."

In 1876 this section was well represented, especially in the collections sent by the United States Bureau of Education and by the several States and cities that contributed.

In 1878, one of the most important collections of books shown was the series issued by General John Eaton as United States Commissioner of Education. For some time they had been known and admired by foreign educators, and the ones then published had received the highest awards in 1873. They were influential in bringing about the establishment of the Musée Pedagogique, which is similar to the Bureau of Education maintained by the Government of the United States.

Public libraries were well represented, and an exhibit of Webster's Dictionary in its various styles and editions attracted great attention. There was a complete collection of American publications on pedagogy, in which the set of twenty-six large volumes of the *American Journal of Educa-*

tion formed an important part. Some of the contributors sent a large number of duplicates of valuable reports and other educational documents for gratuitous distribution.

The country holding an exhibition is always well represented; other governments, cities, and institutions of a special or technical sort sometimes send carefully prepared exhibits; but as a complete picture of the state of education throughout the world, no exhibition has been a success. This is partly due to the fact that no nation will show itself to the best advantage on any but neutral ground. Four of the eight great expositions have been held in France, and so, for at least half the time, Germany has not even tried to do herself justice, and other nations have taken a similar position. Again, there has never been a World's Fair that was advertised properly. Distant nations have been ignorant of the greatness of the opportunity offered until it had passed. The Columbian Exposition does not have to meet either of these obstacles. The United States is at peace with the world. Early announcements of the proposed exposition have been sent to the remotest parts of the earth, and it is now almost certain that, if space is provided, there will be received from every civilized nation an exhibit of its system of education. Such a collection placed in a single building would be the capstone of the whole Exposition. It would symbolize the forces that have produced the civilization of to-day, and made possible this great gathering of the nations.

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III

PUBLIC SCHOOL PIONEERING

FINAL STATEMENT OF THE MASSACHUSETTS CLAIM

If any readers of the REVIEW have had the courage to follow this discussion, they will remember that in June I selected from what seemed to me the many historical inaccuracies contained in Mr. Draper's April article a few of the most glaring. These were, first, that which represented England as schoolless in the sixteenth century; second, that which represented Dutch New York as having a free public school system, the pioneer system in America; third, that which asserted that Massachusetts had no such system, indeed had no free public elementary schools during the first 150 years of its history.

Of two others to which he gives much prominence in both articles I have only a word to say. The action of the Plymouth colony is not involved in this discussion. Plymouth was not Massachusetts until 1692, and for all the purposes of historical inquiry is as distinct as is Connecticut or New York itself. The paper which was the basis of this discussion had Massachusetts for its theme and not Plymouth.

There is, however, one feature of this Plymouth matter which is amusing. Mr. Draper refers to the recently published work by Mr. Douglas Campbell as sustaining his own contention about the Dutch and English schools. This reference would have more weight did not Mr. Campbell in this same work refer to Mr. Draper as sustaining him. Now having given to each other this testimonial of good character, they proceed to contradict each other the first time they meet.

Mr. Campbell says of the Plymouth people: "When the Pilgrims from Holland landed at Plymouth one of their first acts was to establish a common school."[1] Mr. Draper says: "In the Plymouth colony there was no school of any character for fifty-two years after the settlement." Now the ignorant reader might believe either of these gentlemen. He could not possibly believe both.

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[1] *The Puritan in Holland, England and America*, I: 30.

> How happy could I be with either,
> Were t'other dear charmer away!

The intelligent reader can believe neither, for both are wrong. The Plymouth people did not set up a school immediately upon landing. Neither did they wait fifty years. There are entries in court records which show that a school existed in Plymouth as early as 1635, fifteen years after the landing; and the town records of Marshfield contain the account of the establishment of a school in that town by Governor Edward Winslow and others in 1645. These mutually supporting historians ought in some way to "get together." The matter of the education of girls in Boston, of which Mr. Draper makes much account, is also irrelevant. In the sixteenth and seventeenth centuries girls were rarely educated beyond the knowledge of reading and writing acquired in the same schools. Throughout New England the country schools were opened to girls, if they chose to attend, but few availed themselves of the opportunity—as an early historian of the ancient town of Essex says, "only those who thought a good deal of themselves." In the larger towns, where were masters' schools, girls were not expected to attend, because it was not the fashion. When girls wanted the opportunity they received it, though in some cases grudgingly at first, as girls have been admitted to the colleges for men. But all this has nothing to do with the question of pioneering. The greater part of Mr. Draper's second article is devoted to a single paragraph in my paper read at Philadelphia. That paragraph was a summary, and declared that in the development of the compulsory educational system of Massachusetts there had been six distinct steps, each of which Massachusetts took in advance of the other States.

Mr. Draper denies this statement in general and in particular. He affirms in substance that Massachusetts never had an educational system, that it was never compulsory, that it was never developed, that the six steps exist only in the writer's imagination, and finally, that the only sure thing about Massachusetts is an arrogant and everlasting assumption of superiority, which he, for one, proposes to submit to no longer. The crushed worm turns at last, and Massachusetts is shown up in all the hideousness of her naked deformity.

It is my purpose in this paper to reconsider this summary in detail. I shall not attempt to do what Paley found to be impossible, to "refute a sneer," but shall give the facts.

The first compulsory enactment was in 1642, decreeing that all children should be brought up to "learning and labor," the learning to include a knowledge of the capital laws and of the principles of religion. That was a wonderfully comprehensive scheme for that age, indeed for any age. Besides the art of reading, the gateway to all knowledge, it included industrial education, civics, and religion. How to incorporate these three subjects into the educational system is a problem that all educators of the present day are struggling with. The execution of the law was provided for by a system of house to house inspection, so that even in the frontier settlements, too sparsely occupied to maintain schools, the children should not be suffered to grow up in "barbarism." That this law was operative is shown by the following extracts from the records of the town of Billerica:

> 1661. The townsmen do agree that Lieut. Will French and Ralph Hill, senior, do take care and examine the several families in our town whether their children and servants are taught in the precepts of religion, in reading, and learning the catechism.
>
> 1668. The selectmen appoint the next secondary to go the rounds to examine the teaching of children and youth *according to law*.

These are typical illustrations. If it can be shown that in New York or elsewhere a compulsory enactment equally comprehensive had been made by the people or their representatives as early as 1642, I shall be glad to acknowledge myself to have been mistaken. I am the more confident of my position because in the May number of the EDUCATIONAL

REVIEW[2] Mr. William B. Shaw, writing from the State Library at Albany, quotes this statute in full and attaches to it pre-eminent historical importance in the development of compulsory education in the United States.

The second step was the compulsory school law of 1647, which Mr. Shaw also quotes. Concerning this law Mr. Draper offers the puerile quibble that the law requires a *master* for elementary instruction and not a *school*. He fails to see the point. The word master is the glory of the law. It was the intent of the framers that the children who did not care for classical instruction should have more substantial advantages than were afforded by the dame schools of England and Holland. They meant a school taught by a man all the year round, for the benefit of all the children. So the people understood it; so the courts interpreted it. The records of the towns and of the courts furnish abundant evidence to those who want to know. As I have shown in the former article such schools were everywhere established, usually voluntarily, sometimes under the compulsion of the courts. Mr. Campbell, Mr. Draper's own authority, says: "By 1665 every town in Massachusetts had a common school."[3] It is for Mr. Draper to show that in New York or elsewhere as early as 1647 a similar compulsory school law had been enacted by the people.

The third step, as I have numbered them, was compulsory certification of teachers. Concerning this Mr. Draper declares that Massachusetts has never had any certification of teachers, compulsory or otherwise, that amounted to anything, because, as he says, the certificating and appointing power have been in the same hands. Here again Mr. Draper, like the persons in *Pinafore*, "means well, but he don't know." In 1701 by a province law it was ordered that every grammar school master must produce a certificate of qualification from the minister of his town and the ministers of two adjacent towns, or any two of them. This law meets even Mr. Draper's demands. It required a certification by experts, for the min-

[2] III : 445.

[3] *Op. cit.* I : p. 30.

isters were the only persons competent to examine in Latin and Greek. It was independent of the appointing power, for the master was chosen by the town or by the selectmen acting for the town. To prevent favoritism the certificate must be signed by at least one out of town minister. Could there be a more complete recognition of the principle underlying the examination and certification of teachers?

This law was compulsory and operative. Witness the following extract from the town records of Sudbury, dated November 21, 1701, the same year in which the law was enacted:

> We the subscribers being desired by the town of Sudbury to write what we could testify in concerning the justification of Mr. Joseph Noyes of Sudbury for a *legal* grammar school master, having examined the said Mr. Joseph Noyes, we find that he hath been considerably versed in the Latin and Greek tongues, and do think that upon his diligent revisal and recollection of what he hath formerly learned he may be qualified to initiate and instruct the youth in the Latin tongue.
>
> JOSEPH ESTERBROOKS,
> JOHN SMITH.

This instrument will bear the closest inspection even in the light of the most modern methods.

But Mr. Draper had especially in mind the certification of teachers by school committees, who now have also the appointing power. When the office of school committee was made compulsory in 1826, and the power to examine and certificate teachers was conferred upon them, they did not have the appointing power. This was vested in the prudential committee of the districts, and the new office was created to remedy some of the evils of the district system. So that here again the certification was by experts, for the town school committees were composed of the best educated men in the communities, in spite of Mr. Draper's sneer about butchers, bakers, etc., and the appointing power was not in their hands. To establish a claim of New York to pioneering along this line some equally exacting law must be found bearing date earlier than 1701.

The fourth step was compulsory supervision. Mr. Draper affirms that Massachusetts has no supervision and never had any, because, forsooth, "there is no supervision which is not professional supervision." He wisely refrains from defining professional supervision. Apparently, judging from his frequent references to the State and county superintendents of New York, he means supervision by men who give their whole time to it. This leaves out the most important element—fitness. New York has furnished so many examples of politicians masquerading as educators, while holding ephemeral positions as superintendents, that the New England States have been shy of the system.

In 1789 a law was passed in Massachusetts requiring the selectmen and ministers, as a special committee, to visit all the schools periodically, to inquire into their regulation and discipline, and the progress of the pupils in learning. That this was a recognition of the principle of expert, official supervision cannot be denied. That New York had taken any such step cannot be affirmed.

Well-kept records beginning with 1790 contain the reports of this official inspection. They contain the names of the committees who visited the schools, the number of pupils, their classification according to subjects studied, the discipline and spirit of the school, the proficiency or deficiency of the scholars in each study, and the committee's estimate of the teacher's ability and work. The opening pages of these records declare that the work is done in obedience to the law of the State, and the law itself is spread in full upon the records. Here is supervision and it is compulsory. It is supervision by experts, too; that is, by the men in the community best qualified to judge of the work of the schools. It was adapted to accomplish what official supervision is always intended to do, namely, to hold the schools up to the highest standard of the times. This may not have been "professional supervision," according to the New York standard, but it was practical supervision, which is all that I have claimed for it. As the New York school system had not been established when this law went into operation, it is evident that Massachusetts did the pioneering.

The fifth step was compulsory support by taxation. Mr. Draper says of this that he can find in the Massachusetts laws only a requirement that the towns shall raise "such sums as may be necessary," and he sneeringly asks, "How much compulsion is there in this?" More, perhaps, than appears on the surface. It may be observed, by the way, that a law which he did not find requires every town to raise at least three dollars for each child of school age as a condition of sharing in the annual distribution of the income of the State school fund. This may not be compulsory, but it looks in that direction.

What is included in the phrase "such sums as may be necessary"? Necessary for what? To meet the requirements of the school laws, namely, to maintain for at least six months in each year "a sufficient number of schools for all the children," "conveniently located," and "properly furnished"; if a town of 2500 inhabitants, to maintain, besides, a high school for ten months, "competent teachers," and to provide freely all the pupils of all grades with "all needed text-books and supplies." Mr. Draper evidently thinks the town is its own judge of what is necessary. Not so; the entire charge of the schools is in the hands of the school committee, who are independent of the town in the matter of expenditure. Save in building schoolhouses, the action of the committee binds the town. This has been established by the Supreme Court in one of its most famous decisions. If this is not compulsory support by taxation then the English language has no meaning which a lawyer is bound to respect.

The law which required all this to be done at public expense was passed in 1826. As early as 1766, however, a Province law required towns to raise money by taxation for schools, and since that time all schools have been so supported. When it is remembered that the schools of New York were not supported wholly at public expense until 1867, Massachusetts evidently took this step in advance.

The sixth and final step was compulsory attendance. Mr. Draper puts the date of the first Massachusetts law as 1873.

He mistakes a revision and strengthening of the law for the original enactment, which was in 1852. Here again Massachusetts did the pioneering. If any reader wishes a fuller exposition of this matter he will find it in Mr. Shaw's second article on "Compulsory Education in the United States," in the number of this REVIEW for June last.

In view of the facts here presented I reaffirm the statement made at Philadelphia, that each of these six steps was taken by Massachusetts in advance of the other States. I affirm that Massachusetts and not New York did the pioneering, and challenge denial with proofs.

Nor were any of these steps of small importance. Each one marked a substantial forward movement; and the principles involved together form the backbone of the American system of public schools. And the process is what I have called it, one of evolution. The whole future of the system was in the first enactment. Let any State decree that every child shall be educated up to a standard which it sets, and all the rest must inevitably follow—public schools, public taxation, public supervision, authorized teachers, and compulsory attendance.

As early as 1647 Massachusetts had a complete educational system, elementary schools, secondary schools, and the college, related to each other precisely in the same manner as similar schools are related to-day. There has been no break in the continuity of this system. There are public secondary schools which have been fitting boys for Harvard college for more than two hundred years, and these secondary schools have been fed by public elementary schools as long. And from the beginning this has been a public school system, all these schools being established and controlled by the people acting in their civil capacity. They were never established, supported, or controlled by the Church. The Church and the school were co-ordinate institutions established by, and subordinated to the town, which was a civil body politic. This system in its entirety, with its three grades, was recognized in the constitution of 1780:

> It shall be the duty of legislatures and magistrates in all future periods of this commonwealth to cherish the interests of literature and the sciences and all seminaries of them, especially the *University at Cambridge, public schools, and grammar schools in the towns.*

The historical setting of this system is one of the questions involved in this discussion. The plans of Luther and Melancthon, as is well known, included in one or two places in each principality a learned school for preachers, pastors, clerks, and councilors for the whole principality. In all towns and villages good schools for the children should be established, whence those who were adapted to higher studies might be taken and trained up for the public. It was for the use of the children in these schools that Luther wrote his German catechism.

This scheme was substantially adopted in all the Protestant countries. The *First Book of Discipline*, prepared by John Knox for Scotland in 1560, ordained that every kirk should have one schoolmaster appointed, able to teach grammar and the Latin tongue. In the parishes of the Highlands the minister was to instruct the children in the rudiments and in the catechism. The *Book of Discipline* published in England by Cartwright in 1586 decreed that schools should be provided in which the children should be taught secular learning and the catechism.

In Holland the Synod of Dort—the same synod which manifested Dutch toleration by condemning John of Barneveldt for heresy—decreed that the consistories should establish schools not only in cities but in country places for teaching children the catechism. Under the influence of these appeals, schools, resembling each other in all important particulars, were established in every Protestant country. In Germany they were established by the princes, each in his own territory. In Holland in connection with the state Church, under the direction of the synods and consistories. In Scotland in the same way. In England they were established by voluntary endowment by individuals. In elementary schools little was taught beside reading and the catechism; in the grammar schools, more advanced studies to prepare for the universities.

These ideas were the common property of all the Reformed Churches. Holland had no monopoply of them. The settlers of Massachusetts had been educated in the "petty schools" and the endowed grammar schools of England; the ministers and the early teachers had been graduated from the University of Cambridge. They immediately established the familiar Protestant system, with its three grades of schools, modeling them after those they had themselves been educated in. The ideal of the Reformers was universal elementary education. This was as true of England as of the continental countries. More, Cranmer, Ridley, Latimer, all urged it, and the New England Puritans set about realizing it at the earliest opportunity. Had the Puritan rule been permanently established in England the ideal would have been realized there. The preeminently independent condition of the Massachusetts settlers made it possible for them to embody in practice under public auspices the most advanced theories of the Reformation. And this was exactly what they did, under the limitations of new settlers in a new country.

When Mr. Draper says the masses in Massachusetts grew up in "dense ignorance" every student of history laughs in his face. When he jeers at the early New England schools for teaching the catechism he is jeering at the seventeenth century, for there was not an elementary school in Christendom, Catholic or Protestant, in which some sectarian catechism was not taught.

The contention that the American system of public schools has come from Holland, through New York, involves not only historical falsity, but logical absurdity. Boone in his *History of Education in the United States* says there was no public school system south of New England before the Revolution. If the American system has come from New York then something has come from nothing and the ancient proverb "*Ex nihilo, nihil fit*" is at last discredited.

But at the beginning of the present century every town in Massachusetts had dotting its surface, meeting the wants of every child, however remote, elementary schools, absolutely free, supported by general tax, under control of the public authorities, and teaching branches prescribed by the law of the State. Such a school system the New England emigrants planted everywhere in the Northwest. In view of these facts, which are as well attested as any historical facts can be, Mr. Draper's final attempt at an *a priori* argument falls to the ground.

That argument is based on Mr. Draper's feelings and opinions concerning the early settlers of Massachusetts. As this is not history I have but a few words to say in reply. When he says he "has nothing but admiration for the dominant qualities of these people," and then goes on to say that "dense superstition" and "bloodthirsty intolerance" "dominated their lives," one wonders at the taste that can admire such qualities. When, however, he talks about their "lofty and heroic character," and "the magnificent part which that commonwealth has had in the development of our country," in the same breath with "dense ignorance," "dense superstition" and "bloodthirsty intolerance" it sounds like arrant nonsense. Men do not gather grapes off thorns nor figs off thistles. Dense ignorance, dense superstition, and bloodthirsty intolerance are not the stuff that lofty heroism is made of. If the lives of the settlers had been dominated by these qualities the commonwealth could not have had a magnificent or any other part in the development of our country. The structure which these people set out to rear would have crumbled in the raising, and their memory would have rotted, as it would have deserved to do.

These qualities may have "dominated the lives" of Mr. Draper's ancestors, who, he says, were among these early settlers. I am not prepared to deny this, but I do not believe it. On the contrary, I believe he maligns the past as grossly as he misrepresents the present.

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IV

EDUCATIONAL VALUE OF THE METHODS OF SCIENCE

I have not been invited to discuss the educational value of the sciences; that is fast becoming an axiom. I am only asked to consider the peculiar educational value, not of science but, of the methods of science—and I desire to show what I believe to be true, that there is something in the mere methods of science which makes them of peculiar, unique, and distinctive value as instruments of education.

I shall not dwell at length upon the peculiar educational value of the methods of the mathematical sciences, for this has long been recognized and admitted. Mathematics occupies already an honorable place in the curriculum, and its peculiar educational value is usually held to consist, broadly speaking, in the enforcement of purely deductive reasoning. But there is another aspect in which the methods of mathematics have peculiar educational value, and to my mind this is its most distinctive characteristic. It is, more than any other science, that which enforces the abstract as opposed to the concrete; and just here lies its strength and also its weakness as an educational instrument. In its method and its habit as well as its power of divorcing ideas from things, in its constant tendency toward generalization and abstraction, it possesses an educational value of a peculiar kind to an eminent degree. But this very peculiarity limits its educational availability to somewhat advanced periods of education. The habit of abstracting, or passing from the concrete to the general, the power of discovering the principle contained in the phenomenon, is likewise a feature of physical and natural science, and constitutes what might be called the mathematical element of the inductive sciences. But this method or process is certainly seen at its best in pure mathematics, because here it is completely removed in its subject-matter from the concrete; and so it is fair to say that the peculiar educational value of the method of mathematics lies partly in its availability for the enforcement of deductive logic, as seen, for example, in geometry, but chiefly in its enforcement of the power of abstraction, or the passage from the particular to the general as illustrated, for example, in algebra. It is doubtless because of these high functions, in which the methods of mathematics so greatly excel, that it has attained the educational importance which it possesses.

But the strength of the mathematical method is its weakness also. It is constantly seeking to depart from the concrete, and to pass over into the abstract. In this respect it differs completely from physical and natural science, which dwell chiefly upon things and allow their followers to generalize only upon condition that such abstraction shall be followed by strictest verification in further dealings with things. In so far as these generalizations become really abstract and are not limited to objects or phenomena, they resemble mathematical processes; but it may be doubted whether they are ever so far dissociated from matter as to really be worthy of the name mathematical. However this may be, there can be no question that the methods of physical and natural science are of much more elementary educational value than those of mathematics. Cases like Laura Bridgman's and Helen Keller's show what can be done in education by even the most imperfect means of connection with the external world. But if Dr. Howe and Miss Sullivan had been obliged to begin their teaching with the axioms of geometry or the abstractions of algebra, instead of simple objects such as they really used, namely, a doll or a pin, we should probably never have witnessed these, the most wonderful triumphs of all American education. Before leaving the subject of the methods of mathematics I cannot forbear to quote Bacon's opinions of their educational value: "They do," he says, "remedy and cure many defects in the wit and the faculties intellectual; for if the wit be too dull, they sharpen it; if too wandering, they fix it; if too inherent in the sense, they abstract it." And in another place: "Mathematics make men subtill; natural philosophy deepe . . ."

Over against the mathematical, we may place the physical and natural sciences, with the peculiar educational value of whose methods I am here chiefly concerned, inasmuch as it is these subjects which are still struggling in some places for due recognition in the curriculum. It is these subjects, also, which bring the student into the most intimate connection with the modern views of nature and of man's place in nature. These are the laboratory sciences, while mathematics is essentially bookish. It is these which have justified the educational value of the methods of the gymnasium and the workshop; these which, by analogy as well as by physiology, have shown the educational merits of physical culture, manual training, and general handicraft; these which have demonstrated for all time that there are efficient instruments in the educational workshop other than the printed page and the voice of the teacher, other convenient and important avenues to the brain than the optic and auditory nerves, along which the teacher may work.

The physical and natural sciences, including physics, chemistry, biology, geology, and astronomy form a fairly homogeneous group known as the inductive sciences. They are broadly characterized by their extensive, though by no means exclusive, use of methods known as those of inductive logic.

The oldest of these, astronomy, may well serve as the bond of connection between this group and the mathematical. I shall reserve it as a most potent, because a most acceptable and familiar, witness to the peculiar educational value of the methods of physical science. It has long been a favorite instrument in the higher grades of education. But the drawback to the educational value of the methods of astronomy lies in the practical difficulty of applying them. The observations upon which astronomy is based are hard for classes to make, and require comparatively costly instruments. Moreover, the inductions of astronomy are difficult to verify, and involve the use of pure mathematics. These facts limit the applicability of astronomy for the most part to the higher stages of education.

Before we can discover the peculiar educational value of the methods of the inductive sciences we must inquire: What precisely are these methods? The answer to this question, though brief, is the key to the whole situation. It is this: the methods of the physical and natural sciences are the methods of investigation. They begin with observations or experiments; advance to generalizations called hypotheses or theories; and finally proceed to overthrow or establish these generalizations by deducing from them their necessary consequences and rigorously testing them. This method involves inductive, as well as deductive, logic, and herein lies its peculiarity. Turning at once to its educational value, we may observe first, that this is the method which Nature employs. Every one of us has had the most of his education, already, along these lines. It is the method which the child unwittingly pursues before the school ostentatiously takes him in hand. It is this method, or some part of it, that the infant in the cradle follows who "spreads out his arms to the light." At first he only observes and experiments, but by and by he grows wiser and draws conclusions. If he still gains wisdom he learns—but how few ever reach this stage—to verify his conclusions. More often, Nature, his patient teacher to the end, completes the cycle, proving or disproving for him, happily or unhappily. Huxley has described this education by nature in his own way: "It is important to remember that in strictness there is no such thing as an uneducated man. Take an extreme case. Suppose that an adult man, in the full vigor of his faculties, could be suddenly placed in the world as Adam is said to have been, and then left to do as he best might. How long would he be left uneducated? Not five minutes. Nature would begin to teach him, through the eye, the ear, the touch, the properties of objects. Pain and pleasure would be at his elbow, telling him to do this and avoid that, and by slow degrees the man would receive an education which if narrow would be thorough, real, and adequate to his circumstances."

That most remarkable educational achievement of all our history, the education of Laura Bridgman by Dr. Howe, is thus described by Mr. Anagnos. "The first lessons were given by taking small articles such as a key, a pen, etc., having labels pasted upon them with their names in raised letters, and allowing her to feel of these very carefully, over and over again, until she came to associate the word thus printed with the thing itself; and when shown the name apart from the thing would at once bring the object which the name called for." (*Education of the Blind*, 1882.) We must not forget, in our admiration of the result here obtained, to give the credit which it deserves to the method employed. It was the laboratory method reduced to its lowest terms—the method of nature applied by a wise teacher.

But the method of physical science is not merely the method of nature. It does not stop with observation and experiment, but only begins with these. The experiments of Dr. Howe upon Laura Bridgman and of Miss Sullivan upon Helen Keller show how the teacher has it in his power to make objects generate orderly ideas; and Dr. Whewell long ago wrote as follows of the necessary connection of ideas with facts: "To the formation of Science two things are requisite: facts and ideas; observation of things without and an inward effort of thought. . . The impressions of sense, unconnected by some rational and speculative principle, can only end in a practical acquaintance with objects; the operations of the rational faculties on the other hand, if allowed to go on without a constant reference to external things, can only lead to empty abstraction and barren ingenuity."[1]

I wish to insist upon the importance of the generation of orderly ideas by the processes of observation and experiment, because I believe that much of the biological teaching of the day is as ineffective as it is, chiefly for the reason that it stops with an enforcement of merely visual observation. Observation lessons are hardly more than a diversion or amusement, unless the retinal images which they produce arouse

[1] Whewell, *History of the Inductive Sciences*, I: 43.

cerebral activity of an orderly and worthy kind. Observation lessons have no great educational value unless they generate ideas which shall bear fruit in clear thinking, accurate statement, intelligible descriptions, and some measure of comparison.

It is precisely this quality of the method, which, though rooted and grounded in a multitude of concrete facts obtained by careful observation and experiment, still insists upon an ultimate advance from these original observations to a recognition of their common properties—described or defined in generalizations or laws—that has given to the sciences employing it the title of inductive sciences. It may perhaps be true, as Jevons maintains, that the victories of science have come, hitherto, chiefly from the deductive side; but there is one movement, perhaps the greatest of all, which has overflowed the boundaries of science and enriched all branches of learning, and yet has come, not from the deductive but the inductive side. I refer, of course, to the doctrine of evolution. Lyell in geology and Darwin in biology are the great examples here.

In the Introduction to the *Origin of Species* Darwin says:

"When on board H. M. S. *Beagle* as Naturalist I was much struck with certain facts in the distribution of the inhabitants of South America and in the geological relations of the present to the past inhabitants of that continent. These facts seemed to me to throw some light on the origin of species, that mystery of mysteries as it has been called by one of our greatest philosophers. On my return home it occurred to me in 1837 that something might perhaps be made out of this, by patiently accumulating all sorts of facts which could possibly have any bearing on it. After five years' work I allowed myself to speculate on the subject and drew up some short notes. These I enlarged in 1844 into a sketch of the conclusions which then seemed to me probable, and from that period to the present day I have steadily pursued the same object."

This, from his autobiography, is also instructive:

"After I returned to England it appeared to me that by following the example of Lyell in geology, and collecting all facts which bore in any way on the variation of the animals and plants under domestication, that some light might perhaps be thrown on the whole subject. My first notebook was opened in July, 1837. I worked on true Baconian principles and, without any theory, collected facts. . . "

These statements from a leader in the method of induction exemplify the patience, the persistence, and the reserve in speculation which this method demands. "After five years' work I allowed myself to speculate on the subject," writes Darwin.

Another characteristic of the methods of the inductive sciences is their broadening power, and in education there is none more important than this. Any subject which can furnish a really sound, yet broad, training of the faculties is worthy of most serious consideration; and by virtue of their method I claim that the inductive sciences may do this. Observation and experiment; inference and generalization (induction); deduction and verification, by further experiment if need be—where is another instrument of education in breadth like this? And then the sanity which it tends to develop; facts at the beginnings and proofs at the end; speculations controlled; vagaries checked by tests; yet sound speculation rewarded and flashes of genius welcomed, if only they prove to be in harmony with truth.

There is still another respect, however, in which the methods of the inductive sciences are peculiarly valuable as educational instruments. It is their fundamental simplicity due to the fact that they deal, in the last analysis, with concrete objects or facts. The handling of an insect by a schoolboy full of curiosity and keen in observation differs, in method, in only a very slight degree from the examination of the same specimen by a professional naturalist. A thermometer may be read by a schoolboy after one lesson as attentively as by his teacher. A rare plant may be discovered as successfully and as triumphantly added to an herbarium by an beginner as by an expert. The one indispensable requisite in this method is intelligent observation or experiment upon something.

But while it is granted that the method of the inductive sciences has peculiar educational value because it is the method employed by nature; because of its compelling contact with the external world; because of its broadening process in enforcing inductive, as well as deductive, logic; and because of its dealings with concrete objects or facts; it may be urged that it is no longer the exclusive property of science, but has become the true method of inquiry in history, in politics, in philology, and in nearly every modern branch of learning. This is true; and it will be observed how powerful a witness to the real character and value of the method is the phraseology used to describe it in these cases. It is always the *scientific method* in politics, or history, or philology that is urged as most worthy, by the modern disciples of these subjects. No better testimony could be desired as to the origin of this method and its fittest abode. One of the greatest services that science has ever done is to discover and popularize the model method of research which all branches of learning have hastened to adopt, and whose adoption has brought about the scientific spirit of this age.

But it may also be urged that if, as I allow, the scientific method is now by no means confined strictly to physical and natural science, but has infected all other branches of learning, these may suffice quite as well to enforce it, and that in fact by the very change of front of the older subjects of the curriculum our object, if it be to secure the method, is already accomplished; science is not needed because the classics, for example, have become scientific in their philology. The argument has point, but it fails to satisfy; and for this reason. If the method has educational value wherever used, it has its peculiar and superlative educational value in those subjects which gave it birth and which are best adapted to it. Physical and natural science should be taught in the schools for many reasons, but chiefly because they are better adapted than any other subjects to illustrate and enforce scientific method.

The principal reason why the physical and natural sciences are better adapted than any other branches for the teaching of the inductive method is that this method begins with facts based upon personal observation and experiment, and facts of this sort are more abundant and more trustworthy in external Nature than elsewhere. In the inductive sciences, also, there may always be an abundance of direct, first-hand, personal observation and experiment, of which the importance in education cannot be over-estimated, for it is actual personal intercourse with Nature. The student of history, on the other hand, even when he has access to the original documents, is obliged to depend more largely for facts upon the reports of observers, perhaps of small observing power or doubtful veracity; or upon documents, perhaps well conceived but poorly executed, or few in number or ill-preserved. Again, the possibilities of experiment are wholly wanting, while those of verification are very limited. Moreover, mathematics begins with axioms, and history with recorded facts. But botany begins with plants. Axioms and recorded facts doubtless agitate the cerebral protoplasm; so, also, does a rose. But axioms and recorded facts throw no color images upon the retina; no fragrant waves upon the nerve ending in the nose; no pressure on the finger tips. Roses grow from the soft earth, and bud and blossom and decay. Axioms and recorded facts live on only in books and in the minds of men, unchanged forever.

In so far as history, economics, and linguistics can employ the method of physical and natural science, in so far are they like it in educational value. Hence, I believe, has also come the most of their increase of power and efficiency of recent years. But the trouble is that they are after all but ill-adapted to the method. Even when these subjects lend themselves to the direct observation of phenomena and proceed to the next step, namely, generalization, they often fail completely in the third stage or that of verification. For example: Wages rise or fall; it is claimed that this was due to special legislation. But the proof of this is so hard to find that one large party holds one opinion as to it and the other the exact opposite. The trouble is that the scientific method cannot be applied here. If it could, we should make a series of rapid legislative experiments—first in the one direction, then in the opposite—while all other conditions should remain the same, and then carefully compare the results. But such rapid experiments for verification are always impossible, even in the kaleidoscope of American politics. Napoleon was defeated at Waterloo. Various theories are advanced to explain why, but none of them can be verified in a class room. It is impossible to reproduce a battle in a schoolroom or to witness the growth of a nation. But, on the other hand, a piece of ice melts into water before our eyes. On reflection we remember that most ice about us melts with the advent of spring. Some, however, is kept through the summer by being carefully covered and secluded. On the other hand the winter is the season when ice forms out of doors. A cool place also seems to preserve ice. A possible theory to explain all of these phenomena is that ice cannot long endure in the presence of high temperatures, but is conditioned by cold. The theory appears to explain the facts. But we must verify it. If we apply heat directly to it, the melting is hastened. If we apply cold, it is checked. We can even generate ice from water by making the latter cold enough; and we can do all of these things in any class room.

The student of history begins with the spoken word or the printed page. Impulses undoubtedly flow in upon the brain along the visual or the optic tracts; but the stimulus is not the real thing itself. It is a description of it by an interpreter or upon a printed page. I disagree entirely with the authority who claims that "Mommsen's *Rome* is as thoroughly scientific as any of Darwin's work." It cannot possibly be so, because the essence of scientific work is personal observation and experiment. And just here is the reason for the dismal failure of merely text-book work in science; it is dead at the very root.

The modern laboratory is a workshop in which natural conditions can be imitated or controlled. It is a selected and concentrated portion of external nature. And always, in the laboratory, students must be doers and not hearers only. We still need text-books; but the laboratory has come because it does away with the reporter and brings the student face to face with nature. In order to avoid all possible misunderstanding, however, let me repeat at this point what I have already said, namely, that, in so far as such subjects as history, economics, or language demand or permit the use of the methods of science, I hold that they also possess in greater or less degree the same peculiar kind of educational value as the physical and natural sciences. And to show that I am no bigot, though an earnest advocate of the peculiar educational value of the methods of science, I may add that I fully believe that art, music, poetry, and literature have their own peculiar educational values, but values of a wholly different kind from those of the inductive sciences. I also believe that those parts of history and language which cannot be said to be scientific have their own peculiar educational values. But with these I am not now dealing.

Some look upon education as a kind of horticulture, and upon teaching as mere culture of the mind. Nature, they say, gives food and energy to the growing plant; the teacher can at best but bring the food and water and, except perhaps for bending or pruning a little now and then, must leave the rest to nature. But I think that the analogy is false, for it fails in this: it substitutes the plant for the animal, the relatively rigid for the relatively plastic, the adult for the adolescent. As a biologist and a teacher, I doubt the validity of the analogy. We do not talk of "cultivating" animals but we do of training them, and the spirit of this age asks for an education in which there shall be more of a training adapted to animals and less of a culture best adapted to plants.

The most disquieting fact that I know of in American education is the unsatisfactory result of our secondary education. This becomes apparent every autumn when the new classes enter our higher institutions. The incapacity amounting almost to paralysis and the intellectual rawness which the average freshman exhibits mean either that the American boy of eighteen is exceptionally immature or else that he is untrained. There is a growing conviction that he has had too much of the horticultural in his education and too little of real and virile animal training. Training implies the power of *doing*, the power of definite, orderly reaction to stimuli; but the reactions of most American freshmen are painfully indefinite and disorderly—except to stimuli applied in the well-appointed laboratories of athletics. I firmly believe that the remedy for this unsatisfactory state of things lies in a more natural method of secondary education. We must have more of physical and natural science; more, especially, of Nature, more of its substitute, the laboratory. So long as we had but little science on the higher rounds of the ladder, the defects which are now so conspicuous were unobserved by educators. The plain people saw that education above the three R's meant only what they called, and rightly called, "book learning." But they were assured by those in authority that the strange and often grotesque results which they witnessed really meant something very wonderful, and so they submitted. To-day all this is changed. Authority in education is losing its force, and the cry is—"By their fruits ye shall know them."

But in this wholesome decline of respect for mere authority and convention we are brought face to face with a new danger. Because those who should have been wise have conspicuously failed to keep pace with the progress of the age, we are threatened with educational anarchy. Every school committee is now a law unto itself. Estimable citizens, experts in other subjects, it may be, but often wholly wanting in educational wisdom and with no knowledge of the theory or the history of education, are now shaping our curricula. Worst of all, the curriculum of youth is beginning to be sacrificed to factional purposes. The curriculum can never be wholly inflexible. I believe that it should reflect the progress of the age; but that it should be surrendered to the uses of even a worthy faction, I do not believe. Yet such a faction now holds the subject of physiology bound hand and foot, for the sake of the teaching of temperance in the use of alcoholic drinks.

That ideas of evil habits are officially communicated to innocent minds; that facts are strained and false conclusions or half-truths are taught, is bad enough. But these are mere trifles compared with the capital offense, namely, that the curriculum has been sacrificed to a faction. Let us have it distinctly understood that if it is contemptible for politicians to attempt to control the teaching of political economy in our colleges and universities, it is much worse for us to allow partisan, religious, or moral fanaticism to fix the curriculum for the young. Let us make the curriculum our educational constitution, subject to amendment indeed, but only after long debate and with the approval of experts. What we need most, to-day, is competent expert authority in education. A city leaves its water supply and sewerage to experts; why not its education, also?

The most serious practical difficulty in demonstrating the educational value of science is the fact that so few are really qualified to teach the several subjects required; I regret to have to say it, but it is no uncommon thing for a teacher of zoölogy or physiology in the public schools to confess to me that she is ignorant of the subjects which she teaches. There is danger therefore lest these subjects shall fall into contempt from bad teaching. It must be squarely recognized that the requisite preparation for teaching physical and natural science cannot be obtained from books, or from brief courses of manipulation or dissection. The methods of science are laborious and comparatively expensive; they absolutely require the most skillful teachers to apply them, and there is no use in any halfway measures. But in spite of all this, they are simply indispensable in modern education. In my opinion no one can be really qualified to teach any one of the inductive sciences who has not had at the very least one whole year of preparation in that subject, with constant laboratory work. I find, moreover, that teachers of these subjects are sometimes but poorly provided with material for class work by the authorities. All of these things tend to produce poor results and to prejudice the entire subject. To those who desire an expert opinion on the subject of natural science teaching, by one who is not a partisan, I strongly recommend an essay, now more than ten years old but still timely, by Dr. J. G. Fitch, one of Her Majesty's Chief Inspectors of Training Colleges. It can be found among his *Lectures on Teaching* delivered in 1880 at the University of Cambridge, England.

If, in conclusion, I may attempt to summarize the peculiar educational value of the methods of (inductive) science, I shall do so as follows:

(1) The methods of science involve the whole method of investigation and inquiry. They consist of three principal, successive, and interdependent processes, namely, (*a*) observation and experiment, (*b*) inference or generalization from the previous observations or experiments, and (*c*) deduction, from this generalization, which must be submitted to further experiment or observation for final verification. These methods, therefore, are of peculiar educational value on account of their remarkable breadth and scope.

(2) The methods of science have peculiar educational value because they are the natural methods.

(3) The methods of science possess peculiar educational value because they require personal intercourse with Nature, and impart knowledge first-hand, from concrete objects or phenomena.

(4) The methods of science involve the constant use of the senses as well as the imagination and the reason. With science properly taught it becomes possible "to send the whole boy to school."

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V

TESTS OF THE SENSES AND FACULTIES

Tests of the senses and faculties concern the teacher from three points of view. In the first place, those who wish to contribute to the advancement of psychology will find here a convenient opening. In the second place, such tests give a useful indication of the progress, condition, and aptitudes of the pupil. In the third place, the carrying out of the tests might serve as a means of training and education.

The senses and faculties have been studied hitherto by men of science, who have mostly made the determinations upon themselves. This is a necessary beginning, but now that methods have been elaborated, it is very desirable that the measurements should be extended so as to include different classes of persons. There are no individuals better suited for such experiments than the pupils in our schools. They are classified according to age, acquirements, and sex, and the teacher has considerable knowledge of their ability, character, and heredity. A careful investigation of the variation in the senses and faculties under such conditions would at the present time be an important contribution to science. In so far as experiment can be used in the study of mind, scientific progress is assured. The traditional psychology is vague and inexact, and cannot rank as co-ordinate with physical science. But when we regard the history of the several physical sciences, we see that they too at one time consisted of inexact descriptions, artficial classifications, dubious anecdotes, and verbal explanations. With the introduction of experiment and measurement astrology has become astronomy, alchemy has become chemistry, and natural history has become natural science. Physical sciences, such as astronomy, in which measurements could be readily undertaken were the first to be developed, while those, such as electricity, in which it is difficult to make measurements, are still backward. Matter in motion is more readily subject to experiment when passive than when organic and living. Physics has consequently preceded biology in its development. But the progress of biology has recently been rapid, and it will be found that nearly all advances have been due to the application of experiment and measurement. As the living organism is more complex and changeable than inert matter, so the mind is more complicated, protean, and inaccessible than the body. It is natural, therefore, that psychology should be the last science to be weaned by philosophy and to begin an independent growth. Those who have followed the recent development of psychology know that this has been the result of experiment and measurement. Each new application of experimental methods subserves the advancement of psychology, and the very backwardness of the science gives the teacher an opportunity to contribute to its progress.

When our knowledge of the normal variation of mental processes has been somewhat further increased, its determination will give useful indications of individual condition, progress, and ability. In conjunction with the ordinary school examination such tests would show whether the course of study is improving or blunting the fundamental processes of perception and mental life. Tests made at the beginning and end of the day, week, and session would show whether the student is exhausted by the required curriculum. They could be used in comparing different systems of education, different schools, the advantages of city and country, etc. They would show whether girls are able, without injury to health, to follow the same courses of study as boys. Careful tests must almost of necessity be introduced into the public schools. If attendance be made compulsory, the state is undoubtedly responsible for any bad consequences which could be avoided. Thus if the eyesight of a student be injured, so as to involve a loss of ability to earn a living, the state would, under our present laws, probably be liable for damages. In many cases tests which could readily be made would indicate disease, especially of the nervous system, long before it becomes apparent to common observation. The tendency to certain diseases counter-indicate certain employments. Thus a very large percentage of women teachers become insane; consequently those having neuropathic tendencies should not enter on this profession. One boy in twenty is color blind, and this defect, which is never discovered by the individual himself, but may be determined by the teacher in one minute, unfits him for work so far separated as that of the railway signal man or of the artist. As our knowledge increases we shall, on the one hand, be able to indicate very early in the life of the child tendencies to insanity and other diseases, to dipsomania and other vices, and to crime, and precautions may be taken which will limit the range of these abnormal tendencies in the individual, and prevent their spreading in the race. On the other hand, valuable qualities may be early discovered and developed. Special aptitudes will not be lost through unsuitable surroundings and uncongenial work, but the child may be led to the course of life in which he will be most happy and most useful. Many tendencies are likely to be eliminated or increased in offspring according to the marriage of the parents. While instinct is probably a better guide to suitable marriage than scientific principles, it cannot be denied that parents and the conventions of society have much to do with the conditions under which choice is made. Somewhat of the backwardness of the dark ages may be due to the fact that many of the best men were celibates. If a code of honor (such as obtains in some aristocracies, and prevents its members from marrying below their rank) could be developed, and directed toward eliminating degenerative tendencies, and developing valuable traits, the race would be greatly strengthened and perfected.

Such experiments on the senses and faculties would not only advance our knowledge of the mind, and serve as a useful criterion in many ways, but they would also be a valuable training for the pupil. The senses and faculties would be developed as well as measured. In the child and savage every sensation from without is apt to distract the attention and lead to some movement. In the language of physiology, afferent impulses are immediately converted into efferent, and nothing is stored up within. Education seeks to prevent such dispersion, and the importance of manual training and laboratory work for this purpose is now universally admitted. The senses and faculties are trained wherever the student makes special movements and independent observations, but the direction in which these should be undertaken remains an open question. It should be remembered that a laboratory course, as in chemistry, is intended rather for training the pupil than for learning about the combinations of elements, etc. It is, in fact, a course in experimental psychology as much as a course in experimental physics. It can only be decided after practical trial whether a laboratory course expressly directed to studying the senses and faculties would serve better or worse than a physical or biological science as a means of training. Such tests certainly require the most complete abstraction and concentration, and every wandering of the attention is at once betrayed by the experiments themselves. The stimulus of competition and of the effort to improve will certainly secure the interest of the student. It may be found that the experiments will become too much of a "game." But they require a steady hand, undimmed senses, and a clear mind, and any effort to secure these cannot but benefit the student. Those who have marked the improvement in health of students in the English universities as they train for a boat race must wish that some such healthy competition could be more widespread in schools and colleges.

In this paper suitable tests can be indicated only; the teacher who wishes to study methods and results must work over special books and papers.[1] Experiments can be made in an hour which would leave a record of permanent value both to science and to the individual student. If the experiments be regarded as a means of training and made part of the school curriculum, and an hour a week throughout the year be devoted to them, much more can be accomplished. In this case the senses may be taken up in order, beginning, say, with vision. The sharpness of sight may be easily measured by determining the distance at which a printed page can be read. If the sharpness be defective an oculist should be consulted, as the difficulty is usually mechanical and may be readily corrected. Each eye should be tested separately, as one eye is often defective, and an excess of strain is needlessly thrown on the better eye. Color blindness may be detected by letting the student select all the green shades from a heap of colored wools, and more exactly determined by matching colors on revolving wheels. The size of the field of vision may be mapped out by letting the observer look at a fixed point and determining how far in every direction letters can be read and colors seen.

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[1] We are fortunate in having the recent psychologies of Professor James and Professor Ladd. Those who know German should also read Professor Wundt's *Physiologische Psychologie*. Mr. Galton's *Inquiries into Human Faculty* and other writings are of special interest. Professor Jastrow has given in the EDUCATIONAL REVIEW (II : 442) an excellent example of tests on memory and association.

The error in perceiving size may be tested by drawing a line as nearly as possible the length of a standard line, and in perceiving intensity by matching shadows or revolving wheels. The perception of size, distance, and solidity with one and with two eyes may be studied, and its exactness measured. If time permit contrast and after-images may be observed, and the individual variation determined. Useful training in subjective observation may be obtained by noticing that things not looked at directly are seen double, and by observing entoptic phenomena. These are various images due to the structure of the eye. They are often discovered by the individual, and lead him to think that his eyes are failing.

The sharpness of hearing may be tested by determining the distance at which the ticking of a watch can be heard. The test should be made for each ear separately. The range of pitch which can be heard varies considerably with different individuals, and this may be determined. The accuracy with which small differences in pitch can be distinguished and with which intervals can be adjusted should be measured. Time is often misspent by girls who learn to play the piano mechanically with no ear for music. The exactness with which distance and direction can be recognized with the ear may be measured. Learning to distinguish the simple tones in a complex sound is a useful training.

Touch may be tested and trained by determining how far apart two points must be in order that they may be recognized as two when they touch the skin. This distance differs greatly in different parts of the body. Taste and smell are neglected senses, and ones peculiarly open to education. Considering its importance to comfort and health, cooking is a backward art, and our housewives should be trained to distinguish and value small differences. If good water could be distinguished from bad by the average individual as well as it is by the horse, many cases of typhoid fever and diphtheria would be avoided. The same holds for smells, which are invaluable criteria of unhygienic surroundings. The sense of temperature could also be trained so that one may know when a room becomes overheated, and may distinguish subjective from objective causes. The organic changes within the body are obscure and not easy to observe and study, but they are of enormous importance. To recognize correctly the need for fresh air, food, sleep, rest, and exercise would be an acquirement whose value cannot be overstated. If the causes leading to *malaise* and *bien être*, tedium and comfort, could be learned and the mode of living adjusted accordingly, the value of life and all the institutions of society would be affected.

Movement and its perception offer a valuable series of tests. The strength of the grasp of the hand and the rate at which a blow can be struck should be measured. These are convenient tests of bodily condition, and a difference between two hands is often characteristic. The tremor of the hand and the sway of the body give early and important indications of overstrain. The way we judge movements by their extent, their force, and their time should be studied, and the accuracy of discrimination measured. It is easy to find how much difference there must be between two weights, in order that their difference may be noticed.

Feelings of pleasure and pain may be tested in such a course, and possibly elementary æsthetic perceptions trained. It would be a great gain if students could learn to appreciate simplicity and taste in dress and surroundings. The colors and their combinations liked best and least may be determined, as also shapes, relative sizes, etc. A corresponding experiment may be made for the combinations of tones used in speech and music. The pressure or temperature which just hurts may be determined.

Leaving the senses and turning to the faculties we find that imagination, memory, and the association of ideas may be tested. Thus a series of questions can be framed the answers to which will throw light on the mental imagery of the pupil. The thoughts of some are accompanied by vivid pictures, others think more in sounds or movements. Some can call up a scene so as to see all the details before them, others only remember the relations. Such differences are highly characteristic, and indicate special aptitudes which should not be disregarded. The accuracy of ordinary observation may be tested by requiring the student to draw the plan of the hall of the schoolhouse, or to give an account of some event, say something that happened in the school the day before. Casual observation will be found very defective, and the student will learn that but little reliance can be placed on stories of extraordinary events, or even on the testimony in a court of justice. He may also learn to distinguish clearly what he in fact knows, and what he surmises and invents. If so he will have acquired nothing more valuable in his whole school course. Memory may be tested by reading a passage aloud, and requiring the student to write down afterward as much as he can remember. It can be measured more exactly by reading a series of numerals, and determining how many can be remembered. The experiment may be varied by choosing a series of numerals greater than can be remembered on hearing once and determining how often it must be repeated in order that it may be learned. The same series may be used a day or a week afterward; the greater rapidity with which it is learned indicates unconscious memory, and the experiment may be arranged to measure the rate of forgetting. The rate at which a simple sensation fades from the memory may also be determined. The range of consciousness may be measured by uncovering objects for a very short time and determining how much the student can perceive simultaneously. The association of ideas may be studied by giving a word to the class, and letting them write down what idea or other word is suggested by it. The train of ideas for twenty seconds may be recorded. Questions may also be arranged in such a manner that the answers will throw light on the acquirements and interests of the student.

The time of mental processes is a useful test. The accuracy with which an interval of time can be judged is a somewhat different matter; it may be tested readily by giving the student an interval, say one minute, and letting him note when an equal period has elapsed. The time passing before a movement can be made in answer to a stimulus may be measured, but it is so short that delicate apparatus is required. The time needed to see and name series of colors, letters, and words should be found. An educated man can read words making sentences in about half the time that he can read disconnected words. The absolute and relative times are consequently a good test of progress in learning to read. The rate of reading foreign languages measures familiarity with the language. The time of mental processes, such as translating words from one language to another, adding or multiplying digits, remembering the country in which a city is situated, or the author of a book, may be measured readily by letting the student make ten trials in succession. The time in coming to a decision or in making a judgment may also be measured. In normal mental life the attention waxes and wanes and the duration of this rhythm may be measured.

In conjunction with these mental tests certain anthropometric data should be secured. Such are the height, weight, breathing capacity, the color of eyes and hair, etc. Age and sex and the nationality and position of the parents should always be noted. If possible it will be well to record what diseases the student has suffered, as also the age, state of health, etc., of his brothers and sisters, his parents, and other near relatives.

This series of tests of the senses and faculties by no means exhausts such as may be made to advantage. Those wishing to undertake more advanced work will seek to study and measure mental time, intensity and extensity, and the correlation of these magnitudes. But all the tests enumerated here may be made by an intelligent teacher on even the youngest school children, and without expensive or complicated apparatus. It may seem surprising that, with the exception of a few isolated tests, this has not as yet been attempted anywhere; but it must be remembered that experimental psychology is a recent study even in our universities. The first laboratory for research work was established by Professor Wundt at Leipzig in 1879, and the second by Dr. G. Stanley Hall at Baltimore in 1882. The first course in which students carried out a series of experiments in the laboratory was given by the writer in 1888. Now, however, the teacher can prepare himself for such work in most of the leading universities—at Harvard, Yale, Columbia, Pennsylvania, Cornell, Clark, Brown, Washington, Chicago, Wisconsin, Michigan, Indiana, Nebraska, Stanford, and Toronto. The rapid extension of the study of experimental psychology in American universities leads to the expectation that tests of the senses and faculties will soon be undertaken in many schools, and will perhaps be made part of the regular curriculum.

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VI

LIFE IN A FRENCH LYCÉE

In France the secondary schools that are directly ruled by the state are termed Lycées. The purpose of this sketch is to give the English and American reader an idea of the chief characteristics of a Lycée such as that in which the writer was educated. In what follows I have confined myself to the reminiscences and experiences of my own school days.

Doubtless many an English and American excursionist in Paris when visiting the student quarter of the city, under the guidance of a "Cook's agent," has had his attention called to a huge, square building, just behind the monumental mass of the Pantheon, with a ragged old tricolor floating in front of it, and been told that it was the Lycée Henri Quatre, or Henry IV's school.

The foreign visitor when contemplating this dark, massive building, and looking at the heavy iron gate of the entrance, must have pitied the poor boys shut up behind those gloomy walls. If such a visitor, being endowed by nature with good, active legs, should climb the long staircase which leads to the top of the Pantheon, he would get a bird's-eye view of the school buildings spread out below him, he would see quadrangular courtyards, planted with languishing trees, surrounded by high, dark buildings. On one side of those buildings he might see something resembling a small park or rather a large garden; and his eye having rested pleasantly on its "leafy tide of greenery" he would go home and perhaps say to his children that in France boys are very happy, for they are provided with fine gardens to play in. How far he would then be from suspecting the truth!

But let us go in through the small side door. We have not made two steps before we are stopped by a porter who asks us what business we have in the school. But we will suppose that he allows us go on. Leaving the porter's lodge behind us and a big room called the *Parloir*, let us go round the *Cour d'Honneur*. It is a square yard ornamented with some flowers, and with two busts of famous men who have been educated in the school. Around it runs the vaulted roof of a cloister, as in a convent. Indeed the Henry IV's school has been erected on the site of an old convent, the only remains of which are this cloister, the chapel, and a square tower called the Clovis tower, after the early Frankish king. The old cloister is nowadays "The Yard of Honor." Leaving it we go through long corridors, and through four courtyards, those seen by our visitor from the top of the dome of the Pantheon.

If we happen to enter one of those yards when some of the boys are occupying it we shall see them walking in platoons of twenty to twenty-five, two and two, and in step, under an usher's watchful eye. Indeed a boy is never allowed to go through the school buildings by himself, even though the distance be not more than ten yards. If, for instance, he happens to want a book which is in the possession of a boy in the next room, he must have what is called a "*laissez passer*" (pass), which has been signed by his own usher, and will be countersigned by the usher of the other room.

Everything in a French school is regulated by strict discipline, and to put its rules into practice there is a whole army of overseers. At the head of the army is the *Censeur*, who has the superintendence of all the boys; but as he cannot very easily give his attention to every boy's conduct, the whole school is divided into two colleges—that of the little boys, including the sixth, seventh, eighth, and ninth forms; and that of the big boys, subdivided into three colleges, which includes all the forms from the fifth to the rhetorical, philosophical, and mathematical forms. At the head of each of these four colleges is a *Surveillant*, who has a private study of his own, but whose duty it is to visit the boys' schoolrooms as often as possible. He superintends their meals, and knows all the boys of his college by name. He is in fact a second *Censeur*. During recreation time the boys are attended by a special usher, called the yard-master, *Maître de Cour*, who is there to prevent any of those mischievous tricks which boys are apt to indulge in when in a state of semi-freedom. Lastly, to watch over the boys in the schoolrooms, there is the usher, the "*Pion*," as he is denominated in the scornful slang of the school.

As a rule the *Pion* is a poor young man who, not having sufficient money to go on with his studies, has pledged himself, as a private student, to serve the government for ten years. In exchange for his services he is provided with lodging, food, books, a very small income, never more than $250 per annum; and he is allowed to attend the university lectures without paying any fee. This can scarcely be deemed generosity on the part of the French government, because this young man has simply pledged himself to a life of slavery. Slave of the *Surveillant*, who unceasingly controls his actions; slave of the *Censeur*, who often finds fault with him on the former's report, for his lack of severity or for some trifling breach of the school rules; slave of about twenty-five boys who, being under his watchful eye all the year round, take every opportunity of teasing him; slave of his university professors, who report him to the Ministry of Public Instruction if he does not attend their lectures regularly—the *Pion*, as Victor Hugo has said in a splendid piece of poetry, is the martyr of modern civilization.

In fact, however, the poor usher's life has been ameliorated by the government of the Republic, which has done so much (and I think everyone ought to give it due praise) for public instruction. There are now assistant ushers who take the *Pion's* place once a week; thus he is allowed a day's rest regularly. We have already seen that during the recreation a yard-master takes care of the boys. Add the class hours to these moments of freedom (for the usher does not teach the boys; this is done by a specially appointed professor) and you will see that since Victor Hugo's powerful lines appeared, *i. e.*, since 1842, the *Pion's* position has been much improved. It must be remembered, however, that during these four or five hours, if free from his *Pion's* duties, the young man has to attend two or three lectures, so that his leisure hours are few indeed.

It is under the *Pion's* immediate guardianship that the boys go through with their daily exercise. At half-past five in winter, and at five in summer, the loud beating of a drum awakens all the boys, who must be dressed and ready in their schoolrooms half an hour later. A quarter of an hour before the drum sounds the *Pion* (who sleeps in the same room as the boys, in a bed placed on a kind of platform in a corner of the room, and hidden from the boys' sight by a plain yellow curtain) has been awakened by the serving-man, whose business it is to take care of the boys' clothes, to make their beds, to bring in the plates and dishes at meal times, and to clean the rooms. There is one servant to each class room. A class room accommodates about twenty-five boys.

Till 7.30 the boys learn their lessons by heart, and recite them to their *Pion*, who gives a mark to each of them. At 7.30 the drum calls them to the refectory, where they eat a plateful of soup. Then they go to their courtyards for a short recreation till eight, each of them having found by his place, close to his plate, a big piece of bread. Some eat it dry, others eat it with some chocolate which they have brought from home, others buy some jam from a kind of confectionery and toy shop which is opened at playtime in each courtyard; this boys in England would call a "tuck-shop."

At eight o'clock the boys fetch their books from the schoolroom and go into the class room. The usher, who has taken his breakfast with them, has had like them his piece of bread, and has left them only in the courtyard, now goes with them into the class room, and does not leave it till the professor comes in. Then all the boys, who have been pretty noisy before, stand up out of respect for the professor.

The schoolroom where we have seen the boys learning their lessons is furnished with long tables and forms running around the room; along the wall, behind them, is a row of cupboards for the boys to put their books in, and a chair at the upper end, from which the usher can peep out at his boys. In the class room the arrangement is entirely different. There we find low forms and narrow tables raised one above the other and fronting the professor's chair, but without any desk or cupboard, since it is only intended for class time. The class room is rather uncomfortable, with its narrow, flat tables just large enough to put the copy books down upon, but allowing the professor to see all his pupils at a glance and watch all their movements. The boys remain there from eight till ten, while the professor sees how the lessons have been learned and prepared, corrects the exercises—in a word teaches the boys the different matters they have to learn in the course of the school year.

A very short rest is allowed from ten till a quarter past ten, after which the boys go into the schoolrooms till noon, when they have what the English would call lunch, but what is in fact their principal meal and is called in French *diner.* Of course the usher is with them once more. He has taken them out of the class room, has seen them bring their books back into the schoolroom, and has taken charge of them again at the end of their quarter of an hour's playtime.

From 12 to 12.25 the boys and ushers eat their lunch: soup, meat, vegetables, and twice a week dessert of some sort (pastry, cheese, or fruit, according to the season), a glass and a half of "eau rougie," *i. e.*, water mixed with wine; and of bread, salt, and water as much as they want. There is a refectory for each college, so that each room for meals holds about 150 boys. Ten boys sit at each table. The tables are of marble, five on each side. At one end sits the usher, who is waited upon by the servant, apart from the boys, but he is served with the same courses as the boys—the only difference being that he is helped more abundantly than they. As for the boys, they help themselves in turn to the dishes that are laid on the tables. Formerly no talking was allowed during the meal. They now talk at meal time, and as the usher could not easily watch over the two or three tables which are occupied by his own boys, the *Surveillant* is there, who, besides watching over the boys, has to say grace, and to deliver them their letters. It will be a surprise, I am sure, to learn that no letter is given up to the boy to whom it is addressed unless it bears on its back the sender's name, which name has been previously registered as that of a person whom the boys' parents allow to write to their son.

When the meal is over, the boys are taken to the courtyard, where they enjoy the longest playtime of the day, for it lasts a full hour, from 12.30 till 1.30.

Then comes work for three hours, of which one is devoted to learning and reciting lessons in the schoolroom as in the morning, and the other two to another class. If the morning class has been devoted to history, or Latin, or Greek, or French, then the evening class is given up to mathematics, German, or English, etc.

When 4.30 comes, the boys are allowed another three-quarters of an hour's playtime and are given a piece of bread as in the morning. If they are thirsty they may repair to a pump in the yard; no other provision by way of "tea" is made for them.

From 5.15 till 8 the boys are kept in their schoolrooms, where during nearly three hours they do their exercises. It is the longest and also the best employed and most profitable study time which the boys get. The day is practically over; they are not likely to be disturbed by anyone or by any unforeseen event; everything in the school is quiet, and the studious boys may then indulge their taste for learning quietly and steadily. The lazy boys are kept silent by the usher's presence; if they do not pay so much attention as their studious neighbors to their tasks they are at least obliged to go through them, and so are unable to disturb their more zealous fellows.

At 8.15 the boys who are not fifteen years old are sent to bed, while the older ones, if they choose, may get an hour more for finishing their tasks, till 9.30, when everyone, boys and ushers, goes to bed.

The diversions from this monotonous existence are not very numerous. First, there is a three hours' walk on Thursdays, in the afternoon, when the boys put on their best clothes, a kind of military uniform very much the same as that of the English postman, and are taken by the usher, walking in order, two and two, to some place in the city, where they have a half hour's rest, and then return to school by 4 P. M. They then put on their everyday clothes again and resume their ordinary life, with this difference: they are allowed during Thursday evening study time to lay aside their lessons and tasks and to read entertaining books.

I must say, by the way, that most of the bigger boys do not even enjoy this weekly walk, as they are allowed, in consideration of the examination they have to prepare for, to stay at school, and have a long study time instead of the walk.

The other chief diversion is the *Parloir*, that is to say, twice a day during the playtime, at 12.30 and at 4.30, parents and friends are allowed to see the boys in the *Cour d'Honneur*. The visitors have to give their names to a master who is put for that purpose in the *Parloir* or drawing room, which one passes when entering the school. Having received the visitor the master then sends a servant to call the boys out of their courtyards.

Then there is the weekly or fortnightly Sunday *sortie* or holiday. It is only every other Sunday that the holiday is *générale*, *i. e.*, for all the boys. On other Sundays those boys only leave the school who have received a certain number of good marks. Every boy under seventeen years of age has to be fetched by his parents or by someone duly authorized by them, and brought back before 10 o'clock at night. The boys over seventeen are allowed to go out by themselves, but have to carry home, or to their parents' substitute, a pass indicating the hour when they left school. This pass has to be filled out by the parents, so that the schoolmaster may know when the boys got home in the morning and when they left it at night.

The boys who do not go to their parents but stay at the school, get a longer playtime, are allowed to read novels or other books all day long, and are taken for a walk as on Thursday. A boy who gets bad marks not only cannot go out on special holiday Sundays, but often stays at the school, as a punishment, on general holiday Sundays. Though the ways of punishing boys are not varied, they are very often resorted to.

First of all there is no corporal punishment, no caning, no thrashing. Such punishment is strictly forbidden throughout all France. Indeed on this matter the general feelings of England and France are very different. I do not mean to disparage the one or the other. I will only quote what an English boy once said, hearing that a French boy would not stand being caned: "Those French boys, what a set of cowards! They can't stand a good caning." On the other hand, a French boy would say: "Those English boys, how debased they must be to submit to a caning so easily!" The way in which the two nations look at this mode of punishment is very different; but in the main the sense of honor is equally deep seated in both of them.

However, there are other methods of punishment that are as vexatious and perhaps more so than those of a physical sort. The latter, indeed, are quickly over, but a boy who is kept indoors on a Sunday has all the day long to repent the mischief for which he is detained.

Every evening marks are given by an usher to each boy for his conduct during the day, his application to his work and the way he has repeated his lessons being taken into account. These marks run from 0 to 6; 0, 1, and 2 call for punishment; 4, 5, 6 entitle the boys to good marks or credits. At the end of the week, according to the average of their marks, the boys get punished or are given cards attesting their good work and conduct, which cards may later on compensate for bad marks. The professors, too, have to give similar reports of the boys' work, which reports serve as a basis in awarding rewards and punishments of the kind noted above. A lesson badly recited both to the usher and to the professor must be learned by the boys, during the playtime, till they can recite it in a satisfactory way.

The only compulsory bodily exercises are military drill in summer, and the practice of gymnastics all through the year; but as the latter do not take place more than twice a week for half an hour, during which twenty boys have to go in turn through the same performances, the exercise imposed on every boy scarcely amounts to more than ten or twelve gymnastic movements a week. Moreover, as the gymnastics and drill are gone through during playtime, the boys as a rule look upon them as studies, and do not take to them as heartily as they should. There is no cricket, no tennis, no football, no compulsory game of any kind; shut up in their courtyards the small boys enjoy running games, or leap-frog, or the various games which are played with the penny skin-balls, marbles, or tops. Of course when they grow older they cannot find much pleasure in these rather childish games, and then they take melancholy walks around the yards, or even sit down during all the time allowed them for playing. So they have not much exercise after all.

In fact the rules of the school chiefly tend to intellectual development, and I hasten to say that this is well attended to. The professors are all learned men who have taken their degrees. They do not live in the school buildings. They have their private abodes in town, and only come to the school to give their lectures. When they have given them the boys are taken back to their schoolrooms by the ushers; then the professors go home to their own families, and do not trouble themselves any more about their pupils, except when they correct their essays and other exercises and prepare the lectures, which they all do with great conscientiousness. The corps of professors is a select one and well thought of in France. Everyone knows they are serious, conscientious men, who have had to work hard to get through their examinations. Public esteem and consideration makes up for their comparative small stipends. The only drawback to their intercourse with the boys is that it is not more frequent and intimate. Every year the professor has new pupils; by the time he really begins to know them, they leave him. On the other hand this system has this advantage: that every professor always teaches the same things and boys of the same age, and so comes to know the best way of impressing his lessons upon them. At the head of the Professors is the *Proviseur*, an old professor himself. He does not give any lectures, but represents the school in its relations with the Ministry and the boys' parents.

So on the whole it may be said that the discipline in French schools is a compound of the military and religious habits of the country, and of the influence of the Middle Ages—a time when the mind was cultivated exclusively and the body was entirely neglected, as we see in those ancient Italian pictures in which the gowns of the saints can scarcely be said to conceal a body, the attention of the artist having been given to the face exclusively, as being the seat of intelligence and mental expression. The school rules, we have seen, entirely neglect the physical development of the boys, and besides afford them scarcely any mental diversion. No book is allowed which has not been read previously by the head master; never does a newspaper enter the gates of the school; the boys, big and little, are as much secluded from the world as if they were monks, and are alike ruled by the same strict discipline. It should be borne in mind that there are in the *Grand Collège* boys over nineteen years of age. So it is not to be wondered at that no young Frenchman has pleasant recollections of his school days.

On the contrary, the young man nineteen years old longs for the day when he will be able to leave school; and as the school has not prepared him for real life, when he does leave it he finds himself in an entirely new world, as it were. He does not know how to use the freedom which is given to him so suddenly, and too often indulges in reprehensible pleasures with an ardor and a lightness of heart which perhaps may account for the reputation for wickedness which, as a rule, is given to all Frenchmen in England.

On the other hand his intellectual education has been a very good one, and I think that average men are better educated in France than in England. There are now so many Bachelors of Arts in France that whoever is not a B. A. cannot think of entering any liberal profession, or even of becoming a clerk in an important office. I remember an English clerk once asked me seriously if we kept Guy Fawkes' day in France. I suppose he thought that all the nations of Europe had had a gunpowder plot discovered on November 5, 1605. He was of a good family and had been brought up at Christ's Hospital. No French bank clerk educated in a Lycée would make such a remark.

Having been secluded from the world, the young Frenchman enters it desirous of knowing everything, and having gone through a good classical education he is apt to understand and to take quickly to any new, progressive idea. The young Frenchman in his secluded school life has pondered great political, social, artistic, literary questions and has formed ideas of his own on all these topics at an age when the young Englishman is still a boy, and still cares only for his games and sports. Hence the boldness of French theories and attempts in every branch of human activity. All their political ideas, their social systems—all their attempts at novelty in literature, in painting, in engineering, are nothing but the result of the work and reflections of minds overworked, refined to excess, and excited by the contact of similar minds around them. It cannot be denied that of those ideas and attempts which often seem so strange and even monstrous to the sedate English mind, many are indeed absurd and doomed to perish; but it must be owned that many, too, have been adopted by foreign countries, and perhaps many others will be accepted in the future which now are treated with mockery and contempt.

At any rate whatever may be the opinion that Englishmen hold of Frenchmen in other respects, they agree that the bulk of the people in France are more quick-witted than in any other country, and, although they may condemn the French on many points, they entertain a sympathy for them which appears in the interest they take in French affairs. Yet

Athens was crushed by Sparta, although the general sympathy is for Athens. Perhaps such will be the fate of France, or rather such would have been her fate! But fortunately her people have been roused from their physical torpor; they now seem to understand that brute force, if not all, is something at least. Gymnastic societies have sprung up all over France, and already some large private schools in Paris make it a rule to send their boys out of town once a week that they may have bodily exercise in the open air. Moreover, I understand that Parisian students intend to start a cricket club among themselves. It is to be hoped that they may succeed, for the example once given would be followed by all students and all schools in France. Then in the bringing up of French children there would be that equal balance between bodily and mental exercise which England has had the good sense to preserve, and to which she no doubt owes the earnestness and steadiness of her political and social progress.

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VII

EDUCATION IN FOREIGN PERIODICALS

Rousseau's Theory of Education

A. E. STREET IN "MACMILLAN'S MAGAZINE"

"We have, most of us, been accustomed to accept Rousseau as a man whose genius was in too real a sense the issue of a diseased condition of mind and body for anything sane or wholesome to come out of him. To parents and guardians indeed his name has long been anathema; supersensitive, heterodox, lax in morals, the enemy of society, the sport of a maudlin sentimentalism, to them his name, whatever vision it may call up, certainly does not spell education. Yet the claims of *Émile* as a work of serious ethical purpose once stood high. The book in truth bristles with defects which are so patent that the critic might almost pass them by if they were less fundamental. As a matter of fact they form the basis for the whole superstructure. One virtue, however, it assuredly has, and that is the solid one which belongs to the work of a man of clear head, of full courage, and rare power in the manipulation of language. The result is a homogeneous and comprehensive whole, in which each least significant detail has been treated with a microscopic thoroughness. So thoughtful a contribution to the science of the education of children deserves at least our respectful recognition. Starting from the very birth of his subject, Rousseau does not quit him till he is safely married to a wife, as well equipped educationally for her part as he for his; nor is he content to deal in generalities and avoid difficulties, but, on the contrary, lays down rules which leave something to be desired on the score of flexibility, and divides the matter with which education is concerned with a preciseness which argues some want of sense of the intimate way in which one subject is bound up with another. More important still, he confronts the religious question with boldness, and in The Savoyard Vicar's profession of faith expounds the emotional Deism which was the natural issue of his fervid temperament.

"It is difficult to forget that the man who begins his book with an appeal to mothers as sensible as it was well timed, and displays a positively minute thoughtfulness for helpless infant humanity, had in his own person flouted the maxims which he was presently to lay down. The reader of the *Confessions*, however, will remember how hardly his denial of the obligations of fatherhood weighed on his conscience in later years. Nor does it do to forget that the man was made up of contradictions, that the aspirations of one day were forgotten the next, the vows revoked, the convictions undermined, and all in perfect sincerity. Nature and circumstance combined to make him what he was, one of the most notable illustrations of weakness in strength that the world has seen, enemy to no one but himself, suspicious of every friend, but a firm believer in the goodness of human nature at large.

"The fashionable mothers whom Rousseau denounces and on whom he cries may very possibly be matched to-day; but for the vast mass of contemporary motherhood there is nothing to detain us in the recommendations on purely physical matters with which the earlier pages are filled. Man in his natural state, with a simplicity of tastes which makes him relatively strong, lord of himself and self-sufficing, innocent and kindly —an abstraction, in a word, in the formation of which the evidence of savage life goes for nothing—is wholly virtuous. If, as we know him, he has his faults, it results from nothing but mistaken education. This granted, it follows that the natural disposition should be allowed time to crystallize before active education is begun. On these premises, the latter of which might be admissible if the major were not so glaringly false, Rousseau bases his system. Admitting, as he does, every possible difference between one man and another except in this one element of goodness, he lays it down as essential that the first ten or twelve years of a boy's life should be devoted to the encouragement of the body, while the mind is allowed almost to lie fallow. A strong bent will turn everything to account. But Rousseau will tell us that, in the great majority of instances, to attempt education before the character has made itself clear is to court disaster. Persistence may mean success in preventing the true disposition of the pupil from ever showing itself, but cannot make it become other than it is, a proposition not easy to reconcile with the aforesaid theory of degradation.

"The corollary of this large and unsupported assumption is the denial of morality or reason to childhood. Reason, by some strange perversity, is assumed not to grow with the years, but to spring up in a moment half mature, as if it were a sudden gift from Heaven.

"Rousseau, who tells us that he would rather be a man of paradox than one of prejudice, hastens to assume the former character, without making it quite clear that he avoids the latter, by declaring, as he does over and over again in one form or another, that the greatest, the most vital rule of education, is not to gain time, but to know how to lose it; and he will have it that, if time is lost as it ought to be, the child whose stock in trade at twelve consists of a well-nourished and active body, and a mind the tablets of which are still almost unsullied, will so make use of these seemingly modest acquirements as to be level with his contemporaries in three years.

"It is plain that the child becomes at once far more difficult to approach if we can appeal neither to the germ of conscience nor to that of reason. Rousseau, however, who was imbued with a notion of the stern law of necessity which Greek literature made familiar to us, and Victor Hugo has illuminated with the light of romance, finds in it a controlling power which serves his turn. The dim consciousness of impotence must necessarily be common to all children at an early age, and their reliance on others opens a ready means of exercising control. When the law is to be enforced there must be no question at all as to its finality. The 'No' of the parent is to be like a wall of brass against which the tiny hands may batter in vain, impassive, immovable, and inexorable. This simple substitution of force of circumstances for exercise of authority secures a course of conduct in the child which is almost purely mechanical, and, where morality is denied, it is a strictly logical proceeding. The result of course is that, as there is no authority, there is no obedience; and where there is no obedience there can be no rewards or punishments, as such. If, for instance, we take the case of a child who has made itself troublesome by breaking windows, as he acts purely from the destructive impulse which is common to the young, we accept it in silence. If the thing occurs again we are to say dryly (a device which is either meaningless to a child or distinctly harmful, but a very favorite one with Rousseau), 'The windows are my property,' and proceed to shut him up in a dark room. He will probably appeal to a servant to let him out; he is struggling against circumstances and not against authority, be it remembered, and his action is quite justifiable; but his tutor has, of course, been beforehand, and the well-drilled servant refuses on the ground that he too has got his glass to preserve. Finally, on a hint which the child catches, he proposes to give up glass breaking in exchange for liberty, a thing which he is only too glad to do, and is restored to freedom. This brief illustration is enough in itself to expose the utterly unnatural character of the system on which the prophet of nature works, but there are one or two points which call for particular attention.

"It must have occurred to us at once that the law of necessity by itself was a far from adequate equipment for the parent or tutor. An active, moving principle is every bit as essential as that of control, but it was left quite unprovided for so long as the sense of powerlessness in the child gave the only hold on him. We have now learnt that this is to be supplemented by a sense of expediency pure and simple. It will be noticed that the proposition just mentioned comes, or so the child believes, from himself and not from his tutor, and it is vital, if Rousseau was right in his estimate of a child's character, that it should do so. A promise extracted from a child, as we now learn, means absolutely nothing to him; give him a cake and he will undertake to jump out of the window directly he has eaten it; but when the cake is finished, so is the whole transaction so far as he is concerned. If, however, the undertaking is his own, it is so because he has seen clearly that he will be no loser. Here, then, is direct encouragement of a most ignoble and debasing impulse. 'Speak to him of obedience,' says Rousseau, 'and he will not understand you; tell him to do something, he will not hear you; but say, "If you will gratify me in such and such a way, I will do the same by you when I have an opportunity," and instantly he will do his best to carry out your wishes.' There is another noteworthy feature in this episode, and that is the evident prearrangement of the scenes through which he passes. Ask any man or woman what qualities they consider most essential in dealing with a child, and it will be surprising if they do not name straightforwardness among the first. Rousseau will have none of that; if his goal is truth he marches to it along the path of deception, and seeks nature amid the trickeries of the stage. Not only is every servant in the house trained to act a part, but the gardener is taught to fly into an assumed passion, so that *Émile*, who has been using his spade not wisely but too well, may learn not to interfere with the rights of property. To know *Emile* is indeed to submit yourself bound hand and foot to the dramatic instincts of the tutor, who prearranges everything, even to the meeting of his pupil with the woman who has been marked out for his wife. Indeed one almost forgets that it is a philosopher who is expounding his system, and begins to laugh with the writer when he describes the astonished disappointment of the tutor on discovering a scene between a comrade and his pupil, which he had taken to be a regular set piece after his own heart, to be a mere unrehearsed effect, after all.

"The virtues of his method are still to be found. Morality we have seen denied; we have been told that the child who gives alms does so because he looks for a handsome compensation; that to treat youth as reasonable is to make it disputatious; to put a child on his honor is to teach him to lie, and to exert authority to foster mutiny; but all this and more than this is explicable when we remember the nature of the society in which Rousseau moved in Paris. He, of course, argued wrongly from the results which were before him; but an unreasonable, untrustworthy, selfish, and mutinous habit is so easily engendered in childhood that a too hasty denial of qualities, which a clearer insight would have shown to be there all the time struggling vainly to the light, is at least an intelligible mistake.

"If we once realize that for Rousseau the evidence for his conclusions was convincing, we shall see that he had no alternative but to enlist some form of the law of necessity in his service, and the proceeding is all the more natural when we remember what education meant for him. The end which he proposed was not likely to be a conventional one. The ideas which went to feed the French Revolution, the sentiments which Robespierre took for his own, break out on every page. The dignity of labor, the equality of man, the merits of good citizenship are his watchwords; Nature is his goddess. He will train up no mere gentleman, as Locke did; he has not that honor; but a man of simple habits, of pure desires, and ready hands, a man sociable and friendly, who reads in no book but that of nature, who honors age more than office, and exalts busy toilers above mere intellectual eminence, who listens to the voice of wisdom and not to that of opinion, who loves the beautiful and pursues the right. Experience alone, says Rousseau, will fit a man for the battle of life, and the child cannot too soon make acquaintance with the stern logic of facts. If the disillusionment comes late in life it will be all the rougher, and the subject will be less well qualified to endure it. Briefly, the child as soon as it realizes anything will find itself a member of a republic in little, not the crowned king of the household. Badly put, a system of passive resistance to impotent tears seems a harsh one, but if refusal is to be absolute, so is assent to be unconditional. Rousseau will tell us that if the fancies of a child are once given way to he will become a tyrant. Nature has made him feeble because his tendencies are all destructive; but if he is able to turn all about him into his agents he will wreak his mad will like a Caligula of the nursery. I have seen a child, he says, who asked to have the house upset, who would play Mahomet to the mountain, and set down the impotence of his slaves as sheer rebellion. The child, then, must, when the occasion comes, submit to the inexorable yoke of facts; but, generally speaking, he will be accorded a measure of liberty which, at first sight, is only bounded when it trenches on the liberty of others. More liberty, less empire; that is, in sum, the keynote. The earliest tears of a child are prayers; for good or bad, they are his only means of communications, and to ignore them or treat them as a crime is to evoke a lasting sense of injustice. All this may seem too trivial to occupy a philosopher; but if he did not esteem it beneath his notice, it is worth ours too, because it serves to correct the impression of severity which a less particular scrutiny undoubtedly creates. That is far enough from Rousseau's mind. 'Why,' he rather asks of parents at large, 'why destroy the happiness of those little innocents during the brief years which slip away so fast?' All this time the hardening process is going on. Rousseau certainly makes a great mistake in wishing to accustom his young charge to the sight and touch of things which are absolutely revolting in themselves, whether it is done by degrees or not, for acquaintance with what is hideous and startling must either unduly blunt the sensibilities or shatter the nerves, and when to this is added an ordered irregularity in meals, bedtime, and length of sleep, so that nothing may be the result of habit and everything of actual need, it is plain that this will indeed be a case of the survival of the fittest.

"Scattered broadcast over these pages, like gold among the sand, are many of those acute observations, those notes of universal application, those felicitous illustrations which give this book a permanent value for those who will set themselves to read it. What more happy in a small way than the comparison of the child who is fondly supposed to be precocious to the prophet of the almanac? It would be odd if one prophecy did not come true out of hundreds, and it is equally unlikely that a child should go on talking nonsense indefinitely without happening upon a single jewel of speech. Again, how obvious when once said, and yet how needful the warning, that what words mean to us they may not, and probably do not, mean to the child; that with him nothing must be left to be understood, or you will find that the world is supposed to be made of paper because the globe is so. But all this must be sought in the book itself. There is, however, one scene which ought to be reproduced, because it exposes so happily the futility of supposing that a child can rise sufficiently from the concrete to the abstract to take an intelligent part in the discussions of his elders. It appears that at a certain dinner, whereat our tutor was present, the question arose as to whether Alexander was to be rather blamed for his rashness or applauded for his courage in drinking the medicine which he had every reason to suppose had been prepared for his destruction. The debate waxed high; the tutor, who tells the story, modestly nursed his own superiority, and only informs his readers that, to a man of understanding, Alexander's merit of course lay in the practical assertion of his belief in human goodness; the *petit bonhomme* was not so reticent, and gave his vote for courage rather than rashness amid acclamations. Subsequently the tutor, who had his suspicions, took the boy for a walk in the park; all his chatter was still of the Macedonian's unprecedented pluck, but wherein did he believe it to consist? Merely in this: that he had drunk a nasty dose at one breath and without changing countenance.

"With all his devotion to bodily culture Rousseau did not of course look forward to having a merely well-developed animal on his hands after twelve years' training. He puts reason aside altogether for the time, but he devotes himself untiringly to perfecting the senses in the performance of their various functions, without condemning his pupil to the sedentary life which he declares with justice to be naturally abhorrent to youth. The sharpening of the senses being the end, the more particular branches of learning are regarded simply as means and quite devoid of any intrinsic value. Thus we find that, if *Émile* is to be taught drawing, it is purely and simply for the sake of the sympathy between hand and eye which it fosters. With the same object the child shall be encouraged to disport himself at tennis and billiards, and shall intensify the sense of touch by playing various musical instruments, and by accustoming himself to doing things in the dark. Further, he shall learn by experience the elementary principles of mechanics and hydrostatics, and, as his reason grows, shall work out for himself (for the tutor is never to do more than start a train of thought) the motion of the earth; he shall learn to calculate weights, numbers, and distance, the relation which sight bears to hearing and that of smell to taste, in which connection Rousseau, who is now bent on reality, takes occasion to declaim against the common custom of smothering a powder in sugar, because it makes null and void the wise dispensation of nature in setting the nose as the Cerberus of the palate. The Central African who answered his European guest's objection to dine off stinking fish by saying that one does not eat the smell, dealt in subtleties which do not make our philosopher's appeal less logical, however strained its application. Such an education as this has nothing in common with a town life. Man is no book for child to read in, whether he be the man in the street or the man of history, of the workings of whose mind the historian says so little, of his mere physical actions so much. There is no book, indeed, which is not useless at this stage, for they offer, as yet, mere words without ideas. Memory's day too will come, but not till the light of reason is already above the horizon, for her real province is to supply the raw material for reason to work upon, the receipts, as they have been called, in the association of which the concept has its being. And if the books are valueless, so too is the multiplication of languages. Cornelius O'Dowd once said that no great linguist was ever a great man, because the art consists not in the mere adoption of words, but of ideas, in a change of mental attitude, and argues a want of backbone and conviction in its possessor; so Rousseau will tell us that to give a child a second language is merely to double his stock of synonyms, without adding to his stock of ideas.

"The boy is now supposed to have reached his twelfth year, and we have already seen the beginnings of the reign of reason. Purely Utopian as is Rousseau's scheme as a whole (and he really owns to so much himself), there is something fascinating in its unshackled originality, for we may call it original, though Plato has been laid under contribution; and in the daring thoroughness which will allow nothing to be food for memory which has not been first understood, which makes more bearable the obvious artificiality and insincerity of a method in which the child is entrapped into lessons when he least expects it, in which the semblance of liberty conceals a real subjection, in which stones are forever supplying sermons, and nothing is too humble to point a moral. No stronger argument against it, however, could be found than the picture of the *enfant terrible* to whom Rousseau proudly points in vindication of his theories.

"So far we have been merely putting in the foundation. The actual superstructure is now to be built up, and Rousseau begins by casting about for something which shall express vividly the sort of 'handiness' which he believes to be the important feature in the education of rich and poor alike. He finds what he wants in his choice of a manual of education which is, not Aristotle, nor Buffon, but *Robinson Crusoe*. If the meaning had been obscure before, it would have been patent now. Man must be a good citizen, but he must be a little republic in himself, independent and self-sufficient as if he were born to live under the ideal conditions of the state of nature. Whatever his station he must learn a trade, for there is a solid resource in that, and the more nearly it is allied to nature the more honorable it will be. This clearly points to agriculture; but *Émile*, who was already familiar with country life, becomes the apprentice of a joiner, not so much for the sake of learning joinery as such, as to raise himself to the position of a joiner. The truly republican flavor with which the whole system of education is tinged is shown not less in the work that is done than in the conditions under which it is done. Each man or boy is the citizen above everything, the unit in a large society of equals, and his work is to be regarded, not as an individual production, but as a contribution, bad or good, and by whom made no matter, to the common fund of labor. Rousseau has discountenanced anything like emulation from the first; he denies this stimulus altogether now, and when *Émile* is preparing to take to himself the praises of a piece of work which is his own, the tutor says coldly, 'The work is yours, or someone else's; it is none the less well done.'

"Nothing could point more clearly the paramount nature of the claims of society; and at the very end of all when *Émile*, now fully equipped for life, decides to cast in his lot definitely with his fellow-men, and his decision is acclaimed, still there runs a thread of antagonism to this dependence on man throughout the book, as if its writer were putting the pròs and cons to himself no less than to his imaginary pupil. Elsewhere he calls on man, if he would be happy, to restrict his intercourse, and to put his dependence wholly on things if he would be free. Here speaks the man whom the most earnest remonstrances of his friends could not keep from his well-loved solitudes, but the obvious bent of his own personal predilections does little to disturb the tenor of his teaching, and we shall see, now that the study of mankind is to begin, how sedulously he nourishes a feeling of love and pity for humanity.

"Human nature, unfortunately, as Rousseau knew it, would, as he felt, have been more likely to shock a boy whose life has been spent in a state of pastoral innocence than to move his sympathy. As yet he has not learnt the meaning of the latter word; but as Ulysses felt pity when he looked on Ajax distraught, so may a hint of the mutability of human things move him to some semblance of compassion. Extend your self-love to others, says Rousseau, and it will become a virtue: a sentiment which may be Aristotelian, but it is not convincing.

"If, however, innocence is to look on worldliness without contempt, he must first have taken to himself the doctrine, which his tutor would have been quite sincere in teaching him, that man is naturally all that is good though society may be all that is bad, and that while all collectively are contemptible, each individually calls for a profound pity. Let him turn now to history, and particularly let him study in the incomparable Plutarch the behavior of the great in the little things of life, for there, more than anywhere else, the picture of the man of the market place finds its balance and complement in the intimate study of the man of the domestic hearth.

"The question of religious instruction is too large to enter upon here, and it must suffice to say, speaking broadly, that Rousseau would envelop the idea of God in a profound mystery, trusting, with some show of reason, to impress the pupil's imagination more completely in that way than by any specific teaching. This, at any rate, must suffice till, in the natural course of its expansion, the mind becomes persistently engrossed with such lofty matters. His own religion, while he preaches in other things the sternest refusal to take anything for granted, is strictly emotional; he denies all revelation, as generally accepted, on *a priori* grounds, but practically substitutes, for his own personal support, a revelation which has no better credentials than the cravings of his nature. 'What!' he says, 'if there were but one man in the whole world, to whose ears the word of God, as revealed, had never come, would that not be enough to discredit it?' To which we may reply that his reliance on the beauty of the world, as the sign of a beneficent Maker, would be just as completely answered if there was a single human being in existence who knew no other world than the Black Country.

"But if religion is to be postponed, some sheet-anchor must be found to hold the frail bark from drifting on to a lee shore, a point which naturally did not escape a too susceptible Rousseau, though, as he says with much justice, the moral obliquities of a young man are much more generally a concession to opinion than the result of any personal predisposition. His natural bent is rather toward friendship and hero-worship; and if, in *Émile's* case, this tendency is not well defined, he has, at least, an absolute disregard for opinion and a large degree of self-esteem. Rousseau, however, thinks the danger a real one, and he proposes to meet it doubly, by tiring the body and preoccupying the imagination. The first object is to be attained by a persistent devotion to the pleasures of the chase, and the second by chaining the roving fancies to an ideal, which is endued with a name for the sake of giving it reality. Thus the second expedient proves a little less mechanical than the first, and we are still face to face with the fault which has been our bane from the very beginning. The meeting of *Émile* and the real *Sophie* is the climax of deception; it resulted from an elaborately arranged accident in which *Sophie's* parents took part, and in point of fact the two young people were no more free agents than if they had been driven to the altar at the point of the sword.

"With the two years' probation which tutor and pupil spent in travel we need not particularly concern ourselves. Their study was rather the societies which peopled the countries through which they passed than the countries themselves. But if this was the purpose which the journey was ostensibly to fulfill, there was another reason at the bottom, and that a purely moral one. Mere physical pain has been met and vanquished; death is regarded with something of the indifference of the savage; but the moral victory over the passions has still to be won, for, so far, they have been diverted rather than faced. Here Rousseau rises, almost for the first time in practice, however often in words, to a higher level and a purer atmosphere than we have hitherto been breathing in his company. But this is the last touch; and in a moment we find him presenting to us as his handiwork a man in whose armor of perfection there is no discoverable flaw, who is whole in mind and body, full of sense, of reason, of humanity, pursuing the good and the beautiful, master of his passions, no slave to public opinion, but amenable to the dictates of wisdom and obedient to the voice of friendship, possessing every useful talent, and many agreeable ones. So the catalogue goes on; it is not new to us as an aspiration, but it is now presented to us for the first time as an actuality. Are we to take the artist at his own valuation, or may we not ask whether our Pygmalion is justified in believing that his marble-cold creation is now informed by the breath of every virtue? Confining ourselves to the moral aspect of the matter, is it possible, we ask in amazement, that a human being whose mainspring has for so long been pure selfishness, could ever be to his fellow-men what Rousseau would have us believe? Is love of self a quality which needs but extension to be love of mankind, or is it not rather something which will brook no rival, but grows with the years, till it reigns undisputed on the throne of the affections? Is he a truly moral man who is moral by habit rather than by conviction, who has known nothing of self-restraint but impotence, who has curbed his anger because he believed it to be a physical seizure, who has been truthful because a lie could never profit him, who has befriended his associates that he might be befriended in his turn, who has lived for the moment and left the future to itself, whose compassion is rooted in self-regard, who has had the spirit of opposition trampled down in him, and has not been allowed to quell it? All these are merely the virtues of passivity, yet it is Rousseau himself who asks how we can be virtuous without a combat, or strong if we have not subdued weak nature to our will. Strange words those for one who does his best to change a moral being into a machine. No! the choice must be made once for all; morality stands on one side, habit on the other, but they cannot dwell under the same roof-tree. It is easy enough to assume that all means to a good end must be good, that the end will abide by the pupil, while the means sink into oblivion, but habits cannot so easily be taken up and discarded, points of view shifted, and old lessons forgot, as Rousseau implies. He deludes himself if he believes that he has reached his goal, for the man whom he vaunts so confidently with his many-storied Tower of Virtues is like a house that is built on the sands. Let the winds once blow and the rain beat, and its foundations will crumble from under it."

VIII

DISCUSSIONS

ADMISSION TO COLLEGE BY CERTIFICATE

University of Nebraska

The results of my observation and experience, expressed without much regard to order, are as follows:

1—In the West, at least, very few students present themselves for examination at Commencement. They cannot afford two trips to the university.

2—Therefore, in the West, at least, most students come to the September examinations rusty, by three months' vacation, and conscious of this to a point of loss of assurance and of great embarrassment.

3—In the West, at least, it is still quite impossible to hold all entrance examinations on a given day. Students cannot always afford to drop work in the middle of the month, or come up early in the fall.

4—Everywhere there is a tendency to make *some* entrance examinations rather light, and to trust much to personal impressions of a student and of his work.

5—An examination conducted by a stranger to the student and his habit of thought and to the methods of his instruction—and conducted at a time of peculiar embarrassment to the person examined—cannot, in the nature of things, secure just or adequate results.

6—Such an examination tells almost nothing of *power*—which is far more important than mere information.

7—Admission by certificate brings all parts of the school system together in a helpful and stimulating way.

8—It is a recognition which ought to be rendered by the university to workers in other parts of the State system.

9—Students admitted by certificate have secured quite as good average standing as those coming in by examination. If there is any difference, it is in favor of the former.

10—Everything connected with regular school work and usual examinations favors a just and accurate estimate of the success, power, and knowledge of a student; while nearly every condition of the university entrance examinations is against such an estimate.

11—The standard of an institution is not determined so much by its criticism of work done elsewhere (examinations) as by its own work.

12—The doors of any institution may safely swing inward quite easily; but it ought to take hard work to swing them outward.

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Williams College

In 1876 the President of Williams College obtained from the Trustees authority "to make such provision relating to the examinations for admission to college as he deemed for the interest of the college and the convenience of the applicant." Before this date other New England colleges were reported to have introduced the method of admission by certificate, and the vote just cited was now interpreted as warranting its introduction here. The catalogue for 1876–77 therefore announced that "students who had completed the full course of study equivalent to that required for admission to this college, might, by special arrangement, be admitted on certificate of their instructors."

It may properly be said at this point that there was no demand in the Faculty for the new method. Probably a majority did not favor its introduction, and it was consequently at a disadvantage from the outset in respect to the attitude of a considerable number of the Faculty toward it. This is an important element in the history of the certificate method at Williams, as it necessarily follows that the general acquiescence with which the working of the system is now regarded and the entire lack of any active hostility to it in the present Faculty, have come in spite of an initial presumption against it, and are due to the absence of the evil results which were apprehended from it.

The announcement of the catalogue for 1876–77 was received with satisfaction, if not by the Faculty, certainly by a large number of the teachers and by a great majority of the students preparing for college. In 1877, the first year in which the new method was applied, two-thirds of the Freshman class entered by certificate. Five years later the proportion was three-fourths, while for several years past it has been stationary at about eighty per cent.

At first the method was not adequately systematized or restricted, and some poor material reached the college in consequence, but the Faculty began at once to introduce various checks and safeguards. From year to year changes were made in the regulations which helped to prevent the entrance of poorly fitted men, and we now feel a good deal of confidence that we get no larger proportion of imperfectly prepared students by this method than we should get by examination. Some such men do secure admission even by the examination system at every college.

In brief, our usage is this: The right to send students by certificate is not granted to any private tutor. It is not thrust upon any school, but is given to those schools only which apply for it. It is given by vote of the Faculty after the credentials of the school have been examined and approved by the proper officers of the Faculty. These credentials must show that the school has a suitable course of study preparatory to college, and that it devotes an adequate length of time to the several subjects of the course. The school must have had successful experience in preparing boys for college, or it must offer such evidence of its standing, in addition to the credentials above mentioned, as will create a presumption in its favor such as to warrant giving it a trial. The certificate must show the length of time devoted to the principal subjects, and if the time is less than the permitted minimum the student is required to be examined in that subject though the rest of the certificate is accepted. This regulation is enforced in several cases every year.

Certificates are accepted only for the preparatory requirements and never for any part of the college course.

As regards the dishonest use of the certificate right by schools it may be said that there has probably been no case in our experience in which the teacher has designedly taken advantage of the system to abuse it. There has occasionally been a case which created some misgivings as to the teacher's honesty, but even then there has been no clear evidence that he was guilty of anything worse than lack of judgment. In general it may be safely assumed that the masters of the preparatory schools are honorable men, and that they will not take advantage of their certificate right in order to foist upon the college students clearly unfit for admission. They are also intelligent men and know that such a procedure would be impolitic as well as dishonorable, since it would necessarily discredit them and their schools both with the college officers and with their own patrons.

Setting aside, then, intentional dishonesty in issuing certificates as occurring too rarely to require any consideration, it must be frankly conceded that masters of schools are sometimes too lenient in giving boys the benefit of the doubt and so issuing certificates in their behalf. The teacher hopes that the more stimulating influence of college competition and the absence of home distractions will tend to develop the student's ambition and capacity, and thus enable him to reach a higher standard in college than he has reached in school. Sometimes the teacher's leniency is justified by the result. More often it is not justified, and the sifting and eliminating process which goes on here, and presumably elsewhere, during the early part of the college course, is the necessary effort to throw out material which has entered by certificate, but which proves unfit for retention, just as in some other colleges the same process results in eliminating similar material which has slipped through the examination gates in spite of the watchfulness of the gate-keepers.

It is the policy of Williams College to give each student every reasonable opportunity to justify his retention in college. He is dealt with patiently and considerately, but when it has been demonstrated that he is not fitted for a successful college career the experiment is ended without delay. This policy must show the teacher upon whose certificate the dismissed student was received, the necessity for greater care in issuing certificates. It is more of a disgrace to be dropped from college than to be kept at school a year longer, and at least part of the responsibility for the greater disgrace must rest on the teacher through whose bad judgment it was brought about.

If, however, the school continues to send crude material and does not respond to the suggestions of more thorough work and of greater care in issuing certificates, the certificate right may be withdrawn. In extreme cases it would be withdrawn as it has been in the past. The desired end can, however, generally be reached in other ways, and hence the revocation of the right is rare. It is held in reserve to be exercised when milder measures fail.

It should be remembered in defense of the certificate system that it does not abrogate examinations for admission. It simply shifts the place from the college to the school. It is upon the results of examinations and of other school processes that certificates are based. And it hardly needs argument to show that an intelligent and discriminating teacher, after several years of observation and scrutiny of a class in examination and recitation, has wider and better data on which to base a judgment of a boy's fitness for college than can be secured from the necessarily hurried entrance examinations at the college itself.

This statement has obviously taken, in the main, the form of defense of the certificate system rather than of active advocacy of it. The aim is to show that the experience of Williams College does not bear out the frequent contention that the disadvantages of this system more than counterbalance its advantages, and that the tendency of it is necessarily to lower the standard of scholarship in college in comparison with admission by examination.

The advantages of the system are so obvious as to require no cataloguing. To it is to be credited an immense saving of nervous strain to the candidates for admission, and of wearisome and thankless drudgery to the examiners.

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IX

REVIEWS

Lernen und Forschen. Rede beim Antritt des Rectorats an Friedrich-Wilhelms-Universität zu Berlin, gehalten am 15 October, 1892, von RUDOLPH VIRCHOW. Berlin: Hirschwald, 1892, S. 27. Price 1 m.

The Aula of Berlin's great university has been dignified by many noble orations, and this one by the great scientist who is the Rector for the present year is as earnest in tone, as elevated in spirit, and as eloquent in expression as any that have preceded it. Two lines of thought, one main and one subordinate, run through the address. The former is that the university exists not merely to teach what is known, but to explore new fields and to cultivate a taste for such exploration and a proficiency in it in the student body. The latter is that *Lernfreiheit*, the liberty of the student to do what he chooses and as much of it as he likes, has been allowed to go too far, and now seriously threatens the good name of the university.

On the last named point more is implied than expressed; but the reader who knows what has been going on at some of the German universities during the past ten years, sees clearly enough that Professor Virchow means that university legislation must correct the evils of *Lernfreiheit* if warnings and exhortations such as his are not promptly heeded. He traces the various stages of the development through which student privileges have come since the Middle Ages, and shows that "der Student ist nun in vollem Sinne dem bürgerlichen Recht unterstellt; er ist ein Bürger." His business is therefore to devote himself to study, and not to waste the early semesters in mere social enjoyment and in the ostentatious use of traditional privileges and exemptions. " 'Akademische Freiheit,' " says Professor Virchow, "bedeutet nicht 'Freiheit im Nichtsthun,' nicht 'Freiheit im Vergnügen oder in der Befriedigung der Leidenschaften,' sondern '*Lern*freiheit.' "

The author's reason for dwelling upon this point with such emphasis is not, however, a mere disciplinary or administrative one. He goes deeper, and points out that if *Lernfreiheit* is abused the student can never become an investigator; at most he will be, during the later semesters, a learner cramming facts for examination purposes. The ideal university career, on the other hand, is one in which the earlier portion is spent in acquiring a thorough grounding in some department of knowledge, in order that the power of independent research may be given an opportunity for training later.

The latter portion of the address is devoted to an analysis of the power to investigate, as it shows itself in university students. Professor Virchow claims, as Americans do, that the school curriculum is not so organized and administered as to develop fully the child's curiosity, which lies at the base of all scientific research. Something is done, he admits, in this direction, but not enough. Mathematics, philosophy, and the natural sciences, with their rich content and their well-developed and amply tested methods, form a "golden triad," on which our Western culture rests, and from which the highest educational results may yet be obtained. Through them the gymnasium and the university must appeal to the inborn curiosity of the young, and on them must the university chiefly depend for the stimulus and direction that is to make it and keep it not merely "eine Anstalt zum Lernen," but also "eine Anstalt zum Forschen."

N. M. B.

Psychology Applied to the Art of Teaching—By Joseph Baldwin, A. M., LL. D., Professor of Pedagogy, University of Texas. New York: D. Appleton & Co., 1892, pp. xiv, 381. Price $1.50.

Mr. Sully says that[1] "the real business of the teacher of pedagogy is to take principles from the psychologist, and to clothe them with concrete and practical illustrations"; but the reader will not find this ideal carried out in Dr. Baldwin's book—one of the most recent volumes in the International Education series, edited by Dr. Harris. It contains but few attempts to clothe psychological principles with concrete and practical illustrations. It is an effort to derive pedagogical aphorisms from an old psychology that is loaded down with metaphysical speculation. These aphorisms are generally very good as far as they go; but, in the absence of concrete illustrations, there is the danger that the young student will memorize them and imagine he has acquired all the psychological and pedagogical knowledge necessary to fit him for a teacher's work.

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[1] Educational Review, IV: 321.

In the article already quoted Mr. Sully says: "Let us take the well-known laws of memory, such as the effects of interest, repetition, and association. These are indubitably laws of the very widest operation. They happen, moreover, to be the formulation of truths which have become a part of the common knowledge of educated people, and hence are apt to strike the student as commonplace. Yet I will make bold to say that almost any school you chanced to enter would supply you with examples of the violation of these simple self-evident principles." Immediately on reading this I turned to Dr. Baldwin's volume in the hope of finding explicit directions as to how these "self-evident principles" are to be applied in teaching. Instead, I found such rules as these: "Lead your pupils to study science," "Lead your pupils to study history and literature," "Reading, language-lessons, music, manners, and morals must be so taught as to educate memory as well as the other capabilities," "Doing educates memory." Admonitions of this kind are practically useless; but such are Dr. Baldwin's applications of psychology to the art of teaching. Moreover, the book appears to have been written in almost complete ignorance of the latest results of biological research; it tacitly assumes that all children develop alike, and furnishes no guidance for the training of individuals who vary from the normal, or rather, the ideal type; while of the pathology of mind it knows nothing.

There is one point of view, however, from which the book may be pronounced useful—as a guide or an aid to introspection. The importance of introspection is too often depreciated by the physiological psychologists, and Dr. Harris does well to call attention in his preface to the danger of neglecting this most important method in psychological investigation. "We apperceive," he says, "to use the new technical word for this act of recognition and interpretation of what is perceived by what is known before—we apperceive plants and animals by referring their actions and manifestations to inward selves analogous to our own." More than this it is not necessary to say in order to show the utility to the teacher of cultivating the habit of mental introspection. For this purpose the young teacher needs a map of the mind, just as a traveler requires a map of an unknown country. Dr. Baldwin's book serves this purpose fairly well.

W. H. M.

A History of Modern Philosophy (From the Renaissance to the Present)—By B. C. BURT, A. M., some time Docent in the History of Philosophy at Clark University. In two volumes. Chicago: A. C. McClurg & Co., 1892, pp. xii, 368; viii, 321. Price $4.00.

One naturally opens a work in English on the history of philosophy, particularly one on the history of modern philosophy, with interest. Morris' translation of Ueberweg is fit for reference only, and Erdmann's three large volumes are in the same category. The student who needs a manual or outline with which to follow his teacher's lectures, can use Zeller's *Outlines* so long as the ancient philosophy alone is under discussion. But from the closing of the schools by Justinian on, there is nothing to take its place. It is owing to the fact that this want is widely felt that American publishing houses are now bringing out translations of the excellent, though very different, books by Windelband and Falckenberg. Why no one has translated Weber's admirable *Histoire*, which gives a capital survey of the whole history of philosophy in one volume of moderate size, is hard to understand.

The fact that Mr. Burt's book is in two volumes would, in any case, be a drawback to its general use; but it has more grievous faults than this. It lacks any clearly defined controlling principle in its arrangement, it lacks proportion, and it is not well executed. Probably anyone well versed in the history of modern philosophy will admit that Kant is its central figure; that the development of the doctrines of Hume from those of Locke and the doctrines of Leibniz from those of Descartes must be traced and their opposition shown before Kant can be understood and interpreted; that modern German philosophy is best expounded from the standpoint of its relation to Kant; and that English associationism and the philosophy of evolution are vitally connected with Hume. In such a framework as this the various minor movements take their natural places, and the whole of the grand drama is visible, in outline at least, to the student. But if Kant is more important than Comte and Hume than Hobbes, the reader will not easily learn the fact from Mr. Burt. A few more pages, perhaps, are devoted to the one than to the other, but that is all. Even the type used to mark the grand and the minor divisions of the book is the same.

Not only is there no clear-cut and easily understood arrangement, but there is no proper proportion in the treatment of the persons whose names and works are mentioned. Indeed some of these persons find themselves in a summary history of philosophy for the first time.

The writer's style, also, is neither attractive nor consistent. Its unevenness, indeed, is alluded to in the preface and ascribed to the large part played by quotations, direct and indirect. But a history of philosophy, however brief, need not be a *repetitorium*, as Zeller, Windelband, Falckenberg, and Weber—mentioned above—amply demonstrate.

In short, Mr. Burt has made a book which, while abounding in facts, is badly arranged and painfully lacking in interpretation. To crown all, it has no index.

N. M. B

The Nicomachean Ethics of Aristotle—Translated with an Analysis and Critical Notes—By J. E. C. WELLDON, M. A., Headmaster of Harrow School. New York: Macmillan & Co , 1892, pp. lxvii, 352. Price $2.00.

This English version of one of the world's classics has been eagerly looked forward to for some time. Mr. Welldon's undoubted success in translating the *Rhetoric* and the *Politics*, led to the highest expectations being entertained regarding his *Ethics*. Without descending to minute philological details, it may at once be said that, from a pedagogic point of view, these expectations are not disappointed. The translation is clear and fluent, and the interpretation of technical terms is, as a rule, admirable. The difficulties of translating Aristotle are well known, but the student who tests Mr. Welldon's work by comparing it with that of some others who have attempted the same task, will almost certainly be ready to compliment him on his skill in surmounting them.

It is probable that the Greek attempt, beginning with Socrates and ending with Plotinus, to formulate a system of ethics that should rest upon a rational interpretation of life and of man's relation to the rest of the universe, is the most determined and most exhaustive in all history. The conditions of civilization contributed to make it so. This fact, combined with Aristotle's own marvelous insight into human nature and his power of analyzing it, has kept the Nicomachean ethics before the world from the time of its composition to our own. It is as rich in suggestion as it ever was, and in Mr. Welldon's fine translation may still be read and pondered by thousands of readers, to whom, while in the Greek, it is a sealed book. The analysis that precedes the translation is especially complete and well arranged.

N. M. B.

Berghaus' Physikalischer Atlas. Dritte Ausgabe. 75 Karten in Sieben Abteilungen. Herausgegeben von Prof. Dr. HERM. BERGHAUS. Gotha: Justus Perthes, 1892. Price 88 marks.

The modern library, public or private, is rich in books of reference. No student's collection is complete without its quota of encyclopedias, dictionaries, and atlases, both general and special. Of late years these great indexes of knowledge have become marvelously accurate and comprehensive, and now amply fulfill Bacon's dream of a Pansophia. No one of these great works is more scientific in plan and execution, or more fruitful in suggestion than Berghaus' atlas, which has been well known for two generations.

The third edition, which was published a few months ago, is the highest type of German cartography. The drawing is clear and fine, the symbolism plain, and the color work almost faultless. Altogether there are 514 maps, large and small, displaying the facts concerning the geology, hydrography, meteorology, and magnetism of the earth, together with the distribution of plants, animals, and human beings over its surface. The *Physikalischer Atlas* is a necessary supplement of the geographical and statistical atlas, and no scholar, much less a teacher of history or geography or natural science, will willingly be without a copy of it on his shelves.

N. M. B.

An Introduction to Spherical and Practical Astronomy—By DASCOM GREENE, Professor of Mathematics and Astronomy in Rensselaer Polytechnic Institute. Boston: Ginn & Co., 1892, pp. 149. Price $1.60.

This little volume is prepared for students "who wish to begin the study of spherical and practical astronomy, and who are prepared to do so by a sufficient acquaintance with the several branches of mathematics and with the general principles of astronomy." An introductory chapter of definitions and a discussion of the pole, zenith, star triangle, are followed by chapters on conversion of time, transit instrument, sextant, determination of time, longitude, latitude, azimuth, figure and dimensions of the earth, an appendix on the method of least squares, and a small collection of tables. It will thus be seen that the book treats of astronomy as applied to geodesy rather than of practical astronomy in general. With this limitation the book is a good one, and well adapted to its purpose. The amount of mathematics required is no more than the ordinary college student gets in his regular course. The explanations are clear and concise, and the treatment of the topics discussed is generally rigorous and complete as far as it goes. Of course many things are necessarily omitted in a book of such small size, but enough is given to give the beginner a good idea of the nature of the problems discussed, and of the methods of handling them. Larger works, like Chauvenet, are too bulky and extended for the beginning work of the average student. The book gives quite as much as can be mastered by the undergraduate in the time usually allotted to the subject.

Errors seem to be very few, but attention should be called to a statement in the last paragraph of p. 41. In the discussion of Mayer's equation for the reduction of transit observations, the author says that observations of four stars are sufficient to give the clock correction and the three instrumental constants, as each star gives an equation involving the four unknown quantities. The complete solution of such a series of equations is impossible, as any attempt to eliminate the azimuth and level terms results in the elimination of the clock correction term at the same time. The equations are not independent, owing to relations existing between the coefficients. If the clock correction is sought for, either the azimuth or level correction must be independently determined and applied before the solution of the equations of condition.

The addition of a short account of Sumner's method of determining latitude and longitude by circles of position is desirable in view of the present extensive use of the method.

The book is, on the whole, an excellent one for those students who wish to take up the study of astronomy as an adjunct to the study of geodesy, and it will doubtless meet with success.

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X

EDITORIAL

During the absence from the country of the Editor-in-chief, the responsibility for the editorial conduct of the EDUCATIONAL REVIEW devolves upon Mr. William H. Maxwell.

Mr. Gilman's seventeenth annual report as president of the Johns Hopkins university records continued progress in many directions. A much-needed new building, to be known as McCoy Hall, is in process of erection. It will provide an assembly room, faculty rooms, and ample accommodations for the seminaries in the various departments of language, history, and philosophy. The central library and reading room will be placed on the top floor and lighted from above. The trustees are able to erect this building because of the bequest of the late John W. McCoy.

Attention is also directed to the fact that the income of the university, from the securities given to it by the founder, is less than it was by the sum of $75,000 annually. Yet the needs of the institution increase every year. It is perhaps expecting too much from human vanity to hope that before our American millionaires found any more institutions bearing their own names, they will provide adequately for the universities already in existence and doing effective work. The Johns Hopkins is especially deserving in this respect, for it has led the way for nearly twenty years in the higher reaches of scholarship, and exerted an influence for good not measured by the limits of a continent or a hemisphere. If the funds that went to found Clark university, at Worcester, for example, or one-half of those that have been poured into the lap of the University of Chicago, had been added to the endowments of the Johns Hopkins, their value would have been multiplied many times.

During the year the Johns Hopkins academic staff numbered 65 teachers. The students enrolled amounted to 547, of whom 337, representing 146 colleges, had already taken an academic degree. During the year 41 candidates received the degree of bachelor of arts and 37 that of doctor of philosophy. The department of history and political science under Dr. Adams attracted the largest number of students (165), but physics under Professor Rowland, chemistry under Professor Remsen, and German under Dr. Wood followed close behind with 138, 135, and 121 respectively.

The trustees, after consulting the Board of university studies, have adopted an academic costume, differing in minor details only from that prescribed at Columbia college. Every doctor of philosophy of the Johns Hopkins will hereafter be entitled to wear, on all fitting occasions, a black gown and a hood of black silk lined with scarlet silk and edged with gold. Every bachelor of arts will be entitled to wear a black gown and a hood of black stuff, lined with white silk and edged with dark blue.

Signor Martini, the successor of Professor Villari in the Italian ministry of public instruction, has submitted an elaborate and interesting programme of reforms in the educational organization of the kingdom. He proposes first to establish a *scuola unica di cultura generale*, which will follow after an elementary school course of five years duration. This new type of institution will combine some characteristics of the lower classes in the present *gynnasio* with some of those of the technical schools. The course will be three years in length and the same for both sexes. It will serve as a preparation both for the work of the higher schools and for practical life, inasmuch as manual training will be included in the curriculum. The *scuola unica* is to be established and maintained by the communes with the assistance of a subsidy from the state. Those of its graduates who are able to proceed farther will enter the five-year course of the *liceo gynnasio*. The elective system, with certain restrictions, is to be introduced here in order that the pupils may pursue that course of study which is best suited to their tastes and future occupations.

The tendency all over Europe to break up the solidarity of the secondary school course is very significant. It means an approximation to the American college system with its wide range of studies and increasing freedom of choice among them. The effort sometimes made to compare the college to the German gymnasium, and to treat it accordingly, is futile. It is much more likely that the German gymnasium will take on many features of the college.

The inauguration, on January 17, of Dr. Charles Kendall Adams as president of the University of Wisconsin was a red-letter day in the history of that rapidly growing institution. The alumni were present in large numbers, nearly every important town in the State being represented, while delegations from Chicago, St. Paul, Minneapolis, and other neighboring cities of the Northwest showed how far-reaching is the influence of the university. The State officers were interested auditors, and the members of the legislature, in session at Madison, were present in force. The exercises lasted upward of three hours, yet so uniformly excellent were the addresses that the audience do not appear to have tired of them, and the newspaper reports are unanimously glowing. With the legislature present, and the financial needs of the university great, it is not surprising that the keynote of the speeches should have been an appeal for substantial appropriations. From the opening prayer to the benediction this was the uppermost thought of each person on the programme. Chief among the addresses of welcome was that of Dr. John C. Freeman, who spoke for the faculty. Most happy, too, were the cordial remarks of President Angell of the University of Michigan, who appeared on behalf of "the sister universities." Governor Peck, speaking for the commonwealth, declared that "a university endowed by a million and a half of tax-payers is on a sounder basis than any endowed by private subscription." Other addresses were for the alumni, the students, and the regents. The inaugural address, by President Adams, on "The university and the State" was a sound and scholarly presentation of the subject. There are prevalent, he said, two ideas in regard to higher education. The one is that private endowments may safely be left to care for the interests of advanced education of every kind; the other is that it is the duty of the State to foster and support education in all its grades, from the highest to the lowest. Wisconsin is committed to the latter view, and indeed this has been the generally accepted view in the West, from the Ordinance of 1787 to the present day. Dr. Adams pointed out that we are in a period of educational transition. There is coming for the first time in this country to be a distinct difference between the college and the university. The State universities must be a part of this movement; but with the enlargement of the scope of instruction there is an embarrassment not to be overlooked—that of increased expense. The number of subjects taught in a modern university is tenfold greater than in the old college, and the cost of material equipment far in excess of this ratio. Instruction for advanced students becomes more and more costly, and the State, if it wishes its children well taught, must be prepared to foot the bill. Were tuition charged, it would cost each pupil at the Wisconsin university $300 per annum. An incidental fee of $25 only is charged, and the State must not only make up this difference, but supply buildings and apparatus. From this it was an easy step to an argument for more funds for the Wisconsin university, and Dr. Adams closed with a very plain statement to the lawmakers of what he needed to carry on his work, and he was careful to tell them that the needs of the institution would grow with its growth, and must be met at each recurring session if they desired its high standard maintained. The prospects are that they will rise to the emergency, and prove the truth of Governor Peck's dictum.

Dr. Adams assumes charge of the Wisconsin university, as it seventh president, under most favorable auspices. In 1849 the institution had but one professor; in 1854 it sent forth its first graduates—two only, one of these being present at the inauguration of President Adams. To-day there are twelve stately and well-equipped buildings, fifty-two professors, nineteen instructors, seven special university extension lecturers, and over thirteen hundred students, of whom forty are taking post-graduate courses. The institution is making giant strides, and is already a close competitor with Ann Arbor. The prospects for a broad and healthy growth under Dr. Adams are most encouraging, and it is confidently predicted in Wisconsin that by the close of the century it will give instruction to full two thousand students.

Philistinism is coming to the front in the Chicago school board. The school management committee of the Board of Education have decided to recommend that after the present school year clay modeling studies be discontinued. Superintendent Lane did indeed pronounce an opinion in favor of their continuance; but the member of the committee who was especially active in urging the abolition of this branch of work—one is unwilling to gratify his evident desire to gain notoriety by mentioning his name—is too great a man to be influenced by the opinions of educational experts. "In view of the law," he said, "and with the unmistakable voice of the people, as evidenced in the public press and by petitions and letters sent to me, I care no more for the opinions of the superintendents in opposition than for the idle whistling of the wind." Of course the general public and the press are entirely competent to settle such simple questions as those that relate to the kind of training best calculated to develop the powers of a child.

Another member of the same school board announces that he proposes to introduce a resolution providing for a reduction of 25 per cent. in the appropriations for music, drawing, and physical culture. Whether this enlightened policy will prevail or not remains to be seen. The cynical might remark that Chicago does not seem to be the best place in the world in which to hold educational congresses next summer.

The announcements have been made concerning the summer courses at Nääs and at Leipsic for teachers of manual training. At Nääs the first course begins on May 31 and extends to July 12; the second begins on August 1 and ends on September 11. In addition to practical work in the Sloyd room, the instruction will include lectures and discussions on the theory and history of Sloyd. The instruction is given without cost, and the necessary tools and materials are also provided free. Board and lodging may be had at a cost of about $20 for the course.

Dr. Goetze's courses at Leipsic begin on June 26 and July 31, respectively, and end on July 29 and September 2. Here the instruction includes cardboard work, carpentry, wood-carving, and both wood and metal work suitable for rural schools. The applications of manual training, in the construction of physical apparatus and mathematical models, are also indicated. The cost of a four weeks' course, including all living expenses and tuition fees, is estimated at about $40.

At either Nääs or Leipsic the American teacher will be able to pass a pleasant and profitable vacation at very slight expense.

A good illustration of what a small board of education, unfettered by entangling political alliances and acting with an eye single to the best interests of the schools under its charge, can accomplish, is furnished by the recent experience of the city of Paterson, N. J. When the present board came into office in April, 1892, the finances had become disorganized by wanton extravagance and illegal expenditure, while the standard of teaching, owing to the lack of efficient supervision and the withering influence of personal politics, had fallen very low indeed. In less than a year extensive improvements, amounting almost to a revolution, have been established. The kindergarten, properly equipped, has been introduced into all the schools as a preparation for the primary course. Teachers in the grammar grades no longer give instruction each one in all the subjects of a grade, but teach under the departmental system. They have become specialists. Manual training has been put into the grammar grades, and the training school for teachers has been greatly improved. The course of study has been thoroughly revised and a new list of text-books, selected for merit alone, has been adopted. A plan of instruction for teachers has been carefully elaborated, while supervision has been made effective. "Real teaching and vital instruction as contrasted with text-book questioning," to quote the words of a recent report of the committee on education, "have been instituted, and altogether a new departure in study, discipline, and instruction has been organized." All this has been accomplished in addition to placing the finances of the department on a sound basis and planning building operations on a large scale. Paterson is one of the very few cities in this country in which the board of education, as such, has made a determined effort to elevate the public schools. When such an effort by such a body is honestly made, there is no other agency so powerful. The authority that holds the purse strings will always be the most potent. Hence it is that the standard of public education in so many of our cities is low. Hence it is that Quincy, Mass., and Paterson, N. J., have won so enviable a reputation, have set a standard which other cities and their boards of education would do well to study and to emulate.

In the report prepared by Commissioner Harris on the schools of the District of Columbia, referred to last month, there are many wise and significant things. Among them is this: "It would seem to a person well acquainted with the

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[1] EDUCATIONAL REVIEW, V: 208.

defects of the graded system as it exists, that the abolition of examinations for admission to the high school wrought some good for the District. A dull mind has now some chance of trying his intellect on those tools of thought which are able in some measure to make up for differences in talent. A dull boy who has struggled through quadratic equations in algebra, or learned to read Latin, or studied geometry, has by aid of those powerful instruments of research distanced all the talented boys of the grammar school. He can perform mental problems that they will never be able to solve until they invent or master such mathematical and philosophic instruments for themselves." The truth of this doctrine will be generally admitted. The training that comes from the study of algebra, geometry, and Latin will, it must be conceded, often give the comparatively dull mind a length of reach and a strength of grasp that are wanting in an intellect that may be naturally brighter but is less perfectly developed. But is this an argument against the examination for admission to the high school? It it not rather an argument in favor of giving all minds, bright and dull alike, an opportunity to sharpen their wits by using "such mathematical and philosophic instruments," before they enter the high school? If a little Latin, geometry, and algebra taught to a dull boy, after he has entered a high school, will enable him to "distance" all his "talented" companions in the grammar school, they will surely have a similar, if not an equal effect, if they are taught in the grammar school. Commissioner Harris's statement, if true, is a strong argument in favor, not of abolishing the examination in question, but of "enriching" the grammar school course by the introduction of those mind-sharpening studies. The examination for entrance to the high school is, in the judgment of many, worthy of retention because of its stimulating effect on the teachers of the grammar school.

State Superintendent Crooker, of New York, has adopted a new regulation to govern the "uniform examinations for commissioners' certificates," which can hardly fail to be productive of great good. The establishment by Superintendent Draper, Mr. Crooker's predecessor, of "uniform examinations" for teachers' licenses in rural districts, was in itself a long step forward. It elevated the profession of teaching and resulted in improvement in the schools, because it raised the standard of scholarship required to obtain a teacher's certificate. The weak point of the system was in the marking of the papers. This work, Mr. Draper, much against his will, was compelled, by stress of circumstances, to leave in the hands of the county commissioners. Now, the county commissioners, while including in their number many excellent men, are not, as a rule, selected because of their acquaintance with educational affairs. The office is elective, and nominations to it are made for the most part as a reward for political services. To place the marking of papers in the hands of political officers was in no small degree to impair the efficiency of the system. This defect Superintendent Crooker has not been slow to appreciate, and has now taken steps, at least in part, to remedy. In a circular recently issued, he uses these significant words: "Commissioners are also advised that in all future examinations for certificates of the first grade, all answer papers submitted will be forwarded to the State Superintendent for examination, marking, and filing." It now remains for Superintendent Crooker to adopt a similar regulation with regard to the second and the third grade certificates, in order to make the system of "uniform examinations" for teachers' licenses in rural schools completely effective.

What a commentary the action of Superintendents Draper and Crooker is on the system of supervising rural schools through officers elected because of political services! Superintendent Draper took the ground, in effect, that the county commissioners of New York could not be trusted to make questions for the examination of teachers. Superintendent Crooker has discovered that these officers cannot be intrusted with the delicate duty of valuing the answers to questions. The action of these two superintendents is the condemnation of the system. They have made it evident, once and forever, that the supervision of rural schools should be divorced from politics.

Mr. John Swett, Superintendent of the San Francisco public schools, has the courage of his convictions. He believes that the method of appointing teachers in that city is thoroughly bad, and he is not afraid to say so. He sets forth the iniquities of the method with characteristic vigor in his last annual report: "The weakest point in our school system is the method of electing teachers. If there is any other city in our country that has a method so utterly opposed to all educational principles, I have not yet heard of it. Without any doubt whatever, it is the worst in the world. It is purely a system of 'personal patronage.' It is an outgrowth of the 'spoils system' in politics. It is contrary to all principles of civil service reform. It took root about fifteen years ago, and it has grown worse year by year. . . As places become vacant during the year, each director, in regular order, makes an appointment, and by mutual understanding this appointment is absolute, the only condition required being that the nominee must be the holder of a legal certificate. . . Under this system no selection of the best teachers out of the large number of applicants is possible. The election of a teacher becomes merely the personal opinion or personal favoritism of one man. Young women who are graduates of the High School and Normal School are reduced to a dead level with young girls who leave the grammar school and in a few months cram to pass an examination for a certificate. The most talented and accomplished teachers, coming here from other cities, stand no chance of an appointment on merit. School Directors are subjected to the political or personal 'pull' of United States Senators, of Governors and ex-Governors, city officials, Supervisors, members of the county committee, political clubs, and active politicians generally." This graphic picture of a method of appointing teachers, that is a crime against every sound fundamental principle of school administration, represents, unfortunately, the condition of many another city school system as well as that of San Francisco. It is not every school superintendent, however, who has the manliness to proclaim to his official superiors and to the world, the enormity of evils which he is obliged to observe but is powerless to prevent. Mr. Swett deserves all honor for the position he has taken. The words in which he concludes his discussion of this all-important subject, should be pondered by every man who assumes the duties of a member of a school board: "It is sometimes urged that, as School Directors receive no salary for their services, they have the right to the personal patronage of appointing their friends. But it seems to me that citizens who seek and secure such an office of honor have no moral right to prostitute that office to selfish and personal ends."

At the present writing the cabled accounts of Mr. Gladstone's speech in introducing the home rule bill for Ireland make no mention of any provisions for the administration of public education. And yet, next to the great political question of the hour, there is no matter that has occasioned so much excitement and discussion in that country during the past six months as this very question of public education.

The national schools of Ireland are administered in part by local authorities—" patrons " they are called—but chiefly from a central office in Dublin controlled by commissioners selected to represent the various religious denominations. Hitherto religious instruction has been given only under certain restrictions. Some time, however, before the Conservative ministry went out of office, Chief Baron Palles brought forward a proposition in the board of commissioners to the effect that when one Protestant school and one Roman Catholic school have existed within a short distance of each other for three years or longer, all restrictions on giving religious instruction during school hours should be removed, and that the use of religious emblems and text-books should be allowed. The Protestant members of the commission, and Protestants in general, regard this movement as a direct attempt to establish government-supported denominational schools, and have opposed it with all the means and energy at their disposal.

The proposal received the votes of a majority of the commissioners, and then went to the Lord Lieutenant for his approval. While consideration was pending, however, the Liberal government came into power, and the new Irish executive, on the advice of the Chief Secretary, Mr. John Morley, has refused to sanction the proposed new rule. What would be the effect on public education in Ireland of the establishment of an Irish parliament empowered to legislate on all domestic affairs, is one of the most interesting questions connected with the home rule movement.

EDUCATIONAL REVIEW

APRIL, 1893

I

CONTEMPORARY EDUCATIONAL THOUGHT IN GERMANY

The science of pedagogics in Germany is, at the end of the nineteenth century, in a very peculiar position. It employed the entire first half of this century in elaborating safe theories upon which to build a tenable educational system; and now, when its help should be most useful in the solution of questions in the highest degree urgent and important for the national culture, no one cares to hear what it has to say. Political and religious interests, and the more and more peremptory demands of the practical education that leads to a special calling, decide at the present time all school questions in Germany. It is not difficult to understand how this has come about. Pestalozzi's pedagogics, through which Fichte, at the time of the French supremacy, predicted the regeneration of the nation, has become in the hands of his German successors a very valuable system of didactics; in part, however, it has degenerated into a somewhat spiritless formalism. For the decision of the higher questions it has not proved itself adapted. Herbart pronounced with such emphasis against the proposition as to the universal educational value of the ancient languages, that the higher education has, until within the last few years, turned against his pedagogics. Herbart's followers then looked to the public school (*Volksschule*), but its rigid mechanism and one-sided religious tendency did not allow them even here to develop their theories fully. Only after the director of the Francke Foundations (*Francke-*

schen Stiftungen) at Halle—O. Frick, who died in January, 1892—had begun to make Herbart's system of didactics available for the higher education, did it begin to find a footing in the gymnasium. For the great questions of the time, which, since the great war, have brought about a remodeling of the national education, this reform has come too late. Germany, since 1866 and 1870, has become a nation. Where before the freer and more patriotic thinkers among the educated people of Germany consoled themselves with the dream of a new birth of the culture of the ancient world, there was now set up a palpable goal before which the ideal of the Greeks and Romans began to pale. Where formerly, except in a few important centers of trade and industry, the intellect of Germany turned to abstract studies, there was now opened for it in a broad, practical domain a career more compensatory. This necessitates a change of our entire system of instruction, and it may be assumed with safety that one-sidedness, exaggerations, and grievous errors will be the result; for a firmly founded pedagogic theory, which established institutions would be able to defend, does not exist in Germany.

The knowledge that the higher schools have remained far behind the public schools (*Volksschulen*) in didactics, created in Prussia, in the year 1890, the "Gymnasial Seminar." The candidates for the higher school service, who have passed the required examination, are in Prussia since that date sent to certain gymnasia, particularly selected for this purpose, in which they are to learn the system of instruction under the charge of the director and other teachers selected for the work. In accordance with this plan they are required first to attend the lessons of capable teachers, then to make attempts at instruction on their own account, and, lastly, to become familiar with the science of education. These exercises occupy a year; the next year is spent on trial in another higher school. Thus, it is only after having studied on an average four years at the university, having passed the state examination, and having devoted two years to the practice of teaching, that it is decided whether the candidate is qualified as a teacher. That this sort of preparation, for the majority of those who desire to devote themselves to the higher school service, is too costly and too uncertain, is apparent on the surface. In other parts of Germany, however, but little is expected of this arrangement. It was formerly the duty of the gymnasium directors to "introduce" the candidates to the work of education. It was found that this work was done in a wholly unsatisfactory manner. Why should the very directors who before were unfit for this task become qualified after they had been paid for their exertions a few hundred marks? Since then, too, nothing has been heard of the particularly advantageous effects of this arrangement.[1]

Changes altogether greater and more comprehensive were next demanded of our system of instruction. Up to this time the overloading of youth with abstract studies, the neglect of physical training, the lack of regard for the objects of practical life, were the subjects of complaint. Then these complaints were included in the one comprehensive charge: *Our higher school system is no longer adapted to the times.* Education for the ends of practical life and for the higher tasks of the nation —that was the demand made on the gymnasium and on the technical school (*Realschule*). Prussia took the lead in the reform. Perhaps the educational authorities in Berlin took the step reluctantly, but the will of the emperor compelled them to it. The emperor did not think highly of the education that he himself had received at the gymnasium at Kassel.

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[1] The report of the Norwegian, P. Voss, *Die pädagogische Vorbildung zum höheren Lehramt in Preussen und Sachsen* (Halle, 1889), describes, as a matter of course, only the earlier condition of affairs. An account supplementary to this, which contains a description of the seminar of Professor Schiller in Giessen, and the work of the gymnasium director, Professor Uhlig, in Heidelberg, in this direction, and describes a visit to the pedagogical seminar in Jena, directed by Rein, the Herbartian, is given by Professor Ziegler of Strassburg in the supplement to the *Allgemeine Zeitung*, Munich, June, 1889. Schiller has written a special book (Leipzig, 1890) on pedagogic seminars for the higher teaching. To show how much is neglected in this field and for what ends the pedagogical seminar has to strive, is the purpose of a monograph that the writer of this article has published under the title, *Das Staats-seminar für Pädagogik* (Gotha, 1890). Important are Rein's reports, *Aus dem pädagogischen Universitäts-Seminar zu Jena*, which have appeared since 1888.

The youth educated in such a manner did not appear to him satisfactorily equipped for the labor that the fatherland, the present, and the social dangers of the future would require. Thus came about the Berlin School Conference of December, 1890.

There is no school authority for all Germany, but the governments of the confederated states have come to an agreement with regard to many weighty matters in the system of education, and through these agreements it has become impossible for the individual states of Germany in certain things to proceed independently. To certain class grades and examinations, certain advantages are accorded which hold good for all Germany. These advantages, as, for instance, that of the one year voluntary military service, can prevail only so long as the arrangements upon which they are founded remain in force. The Berlin Conference, accordingly, from the beginning was restricted in its decisions. To it, to be sure, three schoolmasters who were not Prussians were invited, but they did not attend the proceedings as delegates from their own states; and the three *extra*-Prussian kingdoms, Bavaria, Saxony, and Würtemberg had no part at all in the conference.

In spite of the undeniable eminence of many of the members of the Berlin Conference, its results are of little significance. The decision was arrived at that the technical gymnasiums (*Realgymnasien*)—those unfortunate mongrels that know classical antiquity only through the medium of Latin, but are not more in touch with modern things than the gymnasium—were to be done away with. Only two kinds of higher institutions should continue to exist in the future: the technical school (*Realschule*) without Latin, in the form of the higher public school (*Höhere Bürgerschule*) with six classes, and the upper technical school (*Oberrealschule*) with nine classes, and the gymnasium in its old form, but somewhat more freely constituted according to local needs. This first conclusion has remained without practical results. The technical gymnasium (*Realgymnasium*) still exists. At the end of the sixth year course, in all higher institutions of learning, the Conference provided for an examination, upon which, as a basis, the privilege of service as a "one year volunteer" is granted. Formerly, institutions with more than six classes were exempted from this examination, the consequence of which was the overcrowding of these institutions with incapable scholars who shunned the examination. This prerogative of the large schools is now set aside, but in the rest of Germany the conditions remain as they were before.

The attempt to begin instruction in foreign languages in the gymnasium with a modern language, as is done in France and in Sweden, the Conference did not favor, but the minister approved the continuation of the attempt, which he does not, however, admit in the work of the state schools. In the examinations for graduation the Conference proposed certain simplifications, but did not, however, materially change the privileges that are connected with them. The Prussian educational authorities have, in the meantime, clothed all higher institutions of learning with such far-reaching prerogatives that the gymnasium can no longer be regarded as the real and only preparatory institution for the university. The Conference recommended that more attention be devoted to instruction in German and in gymnastics. The programmes of instruction that the Prussian school administration issued for Easter, 1892, have already given to German and instruction in gymnastics a greater number of hours. To this end, instruction in the foreign languages has been shortened by several hours. Furthermore, the total number of hours is to be abridged. This change is made also at the expense of the foreign languages. Since mathematics and the natural sciences have thereby received no increase, the scientific results of the Prussian gymnasia must, on the whole, suffer a loss in the future. It is believed that the injury will fall only upon the culture in formal linguistic knowledge; that will, nevertheless, prove an error. The technical gymnasium (*Realgymnasium*) and the technical school (*Realschule*) have been obliged to give up a considerable number of hours in language instruction and in the technical courses. Only German has won. This gain, however, is in part only apparent. In the lower classes, at least, the so-called German hours in our schools have always had only an insignificant value.

The Conference also considered questions of method, education in a general and a moral sense, and the education of teachers. Excellent intentions, but little real insight into the needs of our schools, were thus brought to light.[2]

The immediate consequence of the Conference was the establishment of a commission which in the interest of the Prussian minister should inspect a series of higher institutions of learning in all Germany, and on the basis of their experience and the results of the Berlin Conference make suggestions for the reconstruction of the system of higher education in Prussia. The work of this commission occupied a great part of the year 1891. Under date of the sixth of January, 1892, appeared the new programme of instruction and the examination regulations for higher schools in Prussia. An order concerning the "maturity" and "concluding" examinations had already preceded the programmes of instruction. This order came into force after Easter, 1892. It has up to this time created more disquiet than content. It is justly charged that, to favor the concluding examination after the sixth year, the programmes of instruction have been here and there overloaded with material and that the continuous progress in single subjects of instruction has been disturbed. Instruction in the modern foreign languages shall, according to the new programmes of instruction, from the beginning keep practical exercise in view. This meets with approval from most schoolmasters, for the conflict between the old synthetic and constructive method and the analytic and inductive method of this instruction has been decided pretty well in favor of the latter. But the classical philologists still continually maintain that instruction in Latin and Greek must be imparted in a radically different way, strictly systematic and more scientific, not merely on account of its entirely different aims, but still more because of the different constitution of the ancient languages themselves. In this judgment something of the belief in the particular value of the ancient languages for the universal formal education still shows itself, but even more the lack, peculiar to the German gymnasium, of a safe system of didactics founded on psychological principles. There is a universal complaint in Germany that the scholars of the higher institutions of learning are overloaded with abstract educational material, and yet the teachers of Latin cannot make up their minds to proceed in this instruction from the observation and use of the concrete.

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[2] An official report of the Conference is contained in the *Verhandlungen über Fragen des höheren Schulwesens, Berlin*, 4–17 *December*, 1890 (Berlin, 1891). Of the numerous papers on the Conference may be mentioned: Th. Ziegler, *Die Fragen der Schulreform.* (Stuttgart, 1891); F. Hornemann. *Die Berliner December-conferenz und die Schulreform* (Hanover, 1891). Both papers go beyond mere criticism to positive suggestion.

The Prussian programmes of instruction have not been accepted by the greater German states. Bavaria, Saxony, and Würtemberg, in the year 1891, changed their programmes independently, for the purpose of extending instruction in German and in science, while the Latin, and in part the Greek, is restricted. Baden has simply retained the old programme of instruction—that which received its form before 1870—which the neighboring states now for the first time give in their regulations.[3]

The Minister of Culture, Von Gossler, who has conducted this reform in the system of higher instruction in Prussia, has been commended by the emperor for the circumspection and the energy that he has shown in this labor. The praise was indeed deserved but soon forgotten. He did not succeed in the difficult task of establishing a public school law for Prussia. It was, perhaps, an error to take up this hard work at a time when the religious belief coincides in very many points with the political, but Gossler's energy did not shrink from these difficulties. A man of comprehensive education and great scientific acquirements, prepared in the best traditions of the able official service of Prussia for his high position, as zealously considerate in opening up new ways to education as he was firmly determined to preserve unimpaired the might and authority of the state in his official domain, he submitted to the Prussian Landtag, toward the end of the year 1890, the draft of a public school law which retained the supervision of the state over the entire public school system, but placed the direct control in the hands of the parishes, so that they thereby became controllers of the foundations established for the public school (*Volksschulen*). The proposition gave to the clergy the superintendence of religious instruction and seats in the local boards of school directors. The school, besides, was to be differentiated according to religious belief, in consonance with the statement of the Prussian constitution of 1850, which proclaims the highest possible consideration to religious denominations in the organization of the public schools. The evangelical church authorities found in this draft nothing of essential importance to set aside; but the Catholic party of the Landtag considered it "unchristian." They would hear nothing of the surrender of the foundations to the parishes. The danger that a foundation made with a Catholic intention might be applied against its purpose by the parishes in the large cities, which are for the most part controlled in a liberal direction, appeared to them altogether too great. They did not at all wish that the political body should become powerful in a domain in which they considered the authority of the Church should be supreme. At that time Windthorst, the crafty and bold leader of the Center in the German Reichstag and in the Prussian House of Delegates, was still alive. That the bishops were not consulted before the new law was introduced was regarded by the Ultramontanes as a certain sign that it was the intention to begin anew the scarcely quieted "Kulturkampf" in the sphere of the school, and this thought aroused in Windthorst all the combativeness of his nature. Although the education of teachers was not at all touched upon in Gossler's law, the Center demanded that for seminar direction the clergy alone should be chosen. On the twenty-seventh of February, 1891, the first reading of the law was completed; on the twelfth of March, it was learned that the sturdy minister, who could not win over the powerful party of the Center for his law, had been dismissed. The law itself fell with him.

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[3] For the protection of instruction in the humanities a "Gymnasium Association" (*Gymnasialverein*) has been formed. It publishes a journal under the title: *Das humanistische Gymnasium*, in which director Uhlig (Heidelberg) has given, at the same time, an exact account of all questions concerning the organization of the gymnasium.

Count von Zedlitz-Trütschler succeeded Gossler in the ministerial chair. The name awakens certain hopes. The renowned Minister of Culture of Frederick the Great, Rochow's enlightened friend, belonged to the same family, and Count von Zedlitz-Trütschler had proved himself, as an official in different positions, to be possessed of a not insignificant talent for affairs. Yet he had not been educated in the usual school of German statesmen. He had attended no university and had not been even wholly through the gymnasium, but had chosen a military calling, which he left, however, after a few years in order to manage his family estates. It was evident that this Minister of Culture had been chosen because the hope was cherished that a practical, quiet, and peaceable man, as he was, could more easily get along with the powerful Center than could the idealist Gossler, who defended his standpoint with tenacity. In the autumn of 1891 the presentation of a new public school law began to be spoken of. In January, 1892, this was set before the Landtag—a proof of the capability of the new minister. When, however, the draft was made known, it was seen how easy the labor had been. The demands of the Ultramontanes, whom the Landtag in the preceding session had so violently aroused, were conceded. The conflict, accordingly, burned anew, but with much greater violence and in a broader field. The whole public school was to be delivered over to the churches and the bureaucracy. The parishes had scarcely any part in its management except that they had to provide the greatest part of the funds for its support. How far the powers of the ecclesiastical authorities extended in this new public school law is shown most plainly in two of its provisions. In the examination of the candidates of the public school the clerical authority participates as such, not as the servant of the state. When in this examination the knowledge of religion on the part of the candidate does not appear satisfactory to the representative of the Church, then may he, *even in opposition to the whole board of examiners*, prevent the granting of a certificate. The adjustment of the affair is in this case, in a genuinely bureaucratic manner, relegated to the president of the province. The seminar teachers, who have known the candidate for years, are not allowed to have any voice in the matter. The other regulation is almost worse. That the schools were separated in this draft according to the religious belief of the children can scarcely be a matter of surprise. It has become, indeed, in Prussia a matter of custom that many small parishes have, instead of a really efficient school with several classes, their three schools, an evangelical, a Catholic, and an Israelitish, each with a single teacher who had to give instruction in all of the eight school years. Zedlitz's draft compelled the children of dissenters to receive religious instruction in the tenets of "recognized" religious societies. Freedom from this religious instruction, which burdens the conscience in a wholly unjustifiable manner, can follow only when it can be shown that these children of dissenters receive satisfactory instruction in the religion of their own church from a teacher of their belief who is capable of giving such instruction. That this proof in most cases would be wholly impossible did not trouble the law givers. The Center acquiesced in this draft of the law with the liveliest zeal. That it pursued essentially political ends, that it was principally intended to make the Ultramontanes favorable to the government, was proved by the support given by the Imperial Chancellor, Von Caprivi, to this hitherto unheard of law; for Caprivi so little understood the inner questions which a public school law has to solve that he actually made the charge of atheism against the opponents of the law. With this the patience of the liberals was exhausted, and even conservative Protestants took position against the law which the spirit of the modern state wholly repudiates, and which gave to Ultramontanism an influence on the education of the people that Protestantism, even with this law, could never attain. The movement for or against the law extended itself far beyond the walls of the Prussian Landtag into all circles of the German nation. The universities entered a protest against it as mocking at the spirit of modern education; even the evangelical theological faculties of the most important universities expressed themselves just as decidedly against it. It was rumored that even in the Prussian ministry grave doubts had been raised. The emperor, whose attention had been drawn by the growing excitement of the nation and the unusually blunt opposition made to the measure by the liberal parties, finally uttered the word of solution. On the twenty-third of March, 1892, Zedlitz was dismissed. He had held the ministerial chair little more than a year. The formulation of the public school law thus set aside was his first and last important act as Minister of Culture. The promise of a law to regulate the entire system of instruction in Prussia remains still unfulfilled.

It is significant that in the consideration of the Zedlitz law Protestantism placed itself on the side of the state against the church. The same phenomenon showed itself when the Würtemberg Landtag in May, 1891, had to take action on a question, unimportant in itself, concerning the government of the schools. The Ultramontanes used the opportunity thus offered to the Würtemberg Chamber of Deputies for the candid explanation that the clergy, who in Würtemberg are charged with the supervision of the schools, exercised this supervision only in consequence of their *missio canonica*. This view the Protestants here, too, opposed and appealed to the Reformation, which would place the school under the control of the state. What dangers to the cause of education in Germany can grow out of Ultramontanism, which the politics of the Prussian state has fostered, has never been shown more plainly than in recent years.

In Baden, which leaves to the religious societies the direction of religious instruction to its full extent, but shuts them wholly out from school supervision and forbids to members of the religious orders all service as teachers, the rights of state officials were conferred upon the public school teachers at the same time that minister Zedlitz in the Prussian House of Delegates ridiculed the "liberal model state Baden." This ends public school legislation in Baden, which has established for a long time to come a pure state school system. As a matter of course, the Catholic clergy seek here, too, to convince the people that by this legislation the rights of the Catholic Church are trodden underfoot!

Germany, as almost all Europe, is heavily clogged by its old culture. Science and public life forcibly urge an advance, but old forces of culture like the Church persist firmly in their reactionary tendencies.

It has been necessary to speak so much of teaching regulations and school laws that no room is left for a description of the rich inner life of German pedagogics and of the German school in late years. The privilege of considering these points is reserved for succeeding letters.

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II

TEACHING ELEMENTARY PHYSICS

In a recent paper[1] I offered certain general suggestions as to the qualifications and duties of a teacher of elementary physics, and certain considerations touching the relative merits of the lecture-table method and the laboratory method of instruction. I shall now tell how the particular problem of planning and inaugurating a detailed system of elementary laboratory work in physics for students in preparation for Harvard College has been dealt with.

The idea that there should be such a course did not, I believe, originate in the Physical Department of the College. About six years ago there was a very general overhauling of the requirements for admission, and, as one of the resulting changes, this course was decreed, in brief general terms, which left for the Physical Department the very considerable labor of arranging details.

The first step was to issue to the schools commonly sending boys to Harvard College a circular of inquiry as to their methods and facilities for physics-teaching and the spirit of the school toward the new proposition. On the whole the answers were encouraging for our experiment, and it appeared that in the best schools we could, in general, count upon the equivalent of a daily exercise through one year for the physics work.

The selection of experiments for the new course was made after much consideration. The guiding principle in the choice was that of practical utility. Such laws and facts were to be studied as would have the most direct and frequent bearing upon the everyday life and thought of the pupil. This course was adopted not from indifference to the higher intellectual interest of the study of physics, but because the list of experiments chosen must commend itself to school authorities and to pupils, not all of whom could be expected to share a specialist's interest in his study for its own sake. Moreover, it was felt that the matters of everyday importance in physics are the best ones for any student to begin with, whatever the height to which he may finally aspire as a devotee of pure science. He who would build high must lay his foundations in the common earth.

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[1] EDUCATIONAL REVIEW, IV : 157

As the number of exercises was necessarily limited, it seemed best to avoid such experiments as any considerable proportion of the students would probably have met with before. For instance, it was not considered necessary to frame an experiment to prove that two bodies cannot occupy the same space at the same time, a property of matter which the pupil never thinks of doubting until he learns from his physics book that it is called *impenetrability*. Even at the risk of making the course rather difficult and of leaving wide gaps between the various exercises, it was intended to make each one mark a distinct advance.

The work was to be quantitative, measurement of some kind, in the main. A very short experience in laboratory teaching will convince anyone that he cannot make a squad of students *work* without setting them some definite task, and the definite tasks of a physicist almost always involve measurements. Nevertheless it did not appear best to set up a high standard of numerical accuracy. The students would be young and inexperienced, the apparatus must be cheap, and the object of the course was to serve as a general introduction to the facts, laws, and methods of physics, rather than to train the students to be skillful manipulators.

These guiding principles, followed in laying out the new course, may seem too commonplace to need stating, and yet some of them met with very determined opposition in one or two schools. It was strongly contended, in opposition to the views of the college teachers of physics, that the main object of a laboratory course in physics is to train the student to accuracy of work, to discipline the mind; that the knowledge of physics to be obtained is a secondary or vanishing consideration, and that it is far better to spend the year upon careful, oft-repeated measurements in mechanics and hydrostatics than to hurry the student through the whole field of elementary physics.

I certainly am strongly in favor of such accurate, painstaking work at the proper stage of the student's career, if he is to go on with the study of physics. The advanced physics for admission to Harvard College, which is offered by few candidates as yet, is intended to require such work, and this second laboratory course is, in my opinion, quite early enough for the student to undertake experiments from which he may acquire chiefly skill and the details of method rather than ideas. As to the notion that physics should be studied mainly for mental discipline rather than for its own value, I cannot help comparing it to the notion of a man, well known to my college days, who played the violin for the purpose of strengthening his arm. The tune was of little consequence provided it gave him plenty of exercise. I have no doubt that the muscles may be benefited by violin practice, or that certain valuable mental results come from an earnest study of physics, but I believe these salutary effects will be produced rather more surely if they are regarded as secondary, one to the mastery of music, the other to the mastery of physics.

Rude as the apparatus is in this elementary course, and short the time devoted to any one matter, the pupil finds plenty of opportunity and plenty of encouragement to use his hands and his eyes with judgment and care. Take the very first exercise of the course, to determine the breaking strength of a wire. The instrument for measuring the force is a spring-balance graduated in half pounds. A bad point of view in reading it may cause a considerable error, therefore the observer must have regard to the position of his head. Friction within the balance may cause much error, therefore the hands must hold it with care. The wire to be tested will be weakened by kinks or sharp bends, therefore it must not be fastened directly to the hook of the balance. These particulars and others that might be mentioned make such an exercise profitable as a discipline, but it would be a pity to spend more than one hour upon it.

The next three exercises of the course are a study of the elasticity of solids, in stretching, in bending, and in twisting. These four exercises give perhaps unusual prominence to the properties peculiar to solids, or commonly so regarded ; but when one considers that the floor beneath us and the roof above us, all vehicles in which we ride, nay, our own bodies, depend for their stability and permanence upon these very properties, the amount of time devoted to their study in this course will probably not seem unreasonable. These exercises were framed, originally, shortly after the terrible railroad accident at Forest Hills, an accident resulting, it was said, from gross neglect of ordinary mechanical principles in the construction of a bridge.

The fifth exercise of the course has to do with the peculiar properties of fluids. It furnishes a good example of a method followed with much care in this book, the method of making experiment precede the statement of principle, and, if possible, reveal the principle. We do not, for instance, set out by stating that pressure in a liquid increases with depth. It is the work of a moment to find that it does so increase. We do not state at the outset that the pressure at any given point in a liquid is equally great in all directions. We propose to the student the question whether this is or is not the case, and show him how to answer it for himself. We do not declare at the beginning that pressure is equally great at all points on the same level. We ask the student to find out, with a rather broad range of conditions, whether this is or is not true. When the student has answered these three questions for himself he is in possession of a few simple facts, or laws, which are the basis of the whole matter of hydrostatics, and which will, with a little skillful coaching, enable him to make short work of the hydraulic press, the various forms of the "hydrostatic paradox," and all the familiar wonders with which this particular region of physics is replete. (Of course the phenomena of surface tension, or "capillarity," are not fully covered by these simple laws of hydrostatics.)

The method of leading to principles by means of experiments or special cases is no new invention, but the Harvard course is perhaps distinguished by the strictness with which this method is followed. This strictness was maintained in the construction of the course partly out of deference to the opinion of those not in the Physics Department. While the course was still in embryo I happened to use in a conversation with President Eliot the expression "verification of Boyle's law." He immediately took up the words and said, "That is just the attitude we want to avoid, the attitude of verification." Theory and experience both indicate that the President was right, but it is possible to maintain the opposite attitude, the attitude of the explorer and discoverer, too rigidly. If a student does happen to know a certain principle before he takes up the experiments intended to prove it, he has little patience with attempts to make him act as if he did not know it, and yet it does not follow that it would be useless for him to go carefully and critically through the experimental proof for himself. The difficulty lies in getting him to follow carefully and critically a well-beaten track to a foregone conclusion. It will require considerable vigilance and a strong *moral* influence on the part of the teacher to get really good, honest work from the student under these circumstances. Conscious falsification of observations on the part of the student is probably much rarer than unconscious falsification under the influence of the bias given by a knowledge of the result to be expected. Swearing to one's own hurt is a proverbially severe test of rectitude, and this test is applied to the student who, knowing what is desirable, is expected to put down observations faithfully, which may show that his experiment has not gone as it should. It is partly for this reason that Harvard requires the candidate who presents himself in experimental science at admission to place in the hands of the examiners, as part of the evidence of his preparation, the identical notebook which he has used for his original records upon the laboratory table, not a copy book revision of these records with the blunders and failures omitted or glossed over.

Passing over a number of exercises which have no very distinctive features, we come to those upon the equilibrium of forces as such, the parallelogram of forces, etc. The essential features of these exercises are such as I have already mentioned—quick action with a reasonable but not very high degree of numerical accuracy, simple and cheap apparatus. The forces are applied in a horizontal plane and are measured by means of spring balances. Certain important general principles are aimed at directly, and when they have been captured and brought into service, ordinary problems of the inclined plane and levers are readily dealt with.

Dynamics, the science of bodies undergoing change of motion, then furnishes three exercises. The first of these is for the purpose of illustrating inertia, and the fact that bodies declared equal by the *inertia* test are found equal by the *weight* test also. Of course great exactness is not attained here. If bodies which by the inertia test appear equal, are found by the weight test to differ from each other by not more than three or four parts in one hundred, the experiment is regarded as satisfactory. The next exercise has to do with the simple pendulum. The third and last dynamical exercise is intended to illustrate *action* and *reaction*, the general law, obeyed by all bodies whether elastic or inelastic, that any and every mutual action of two bodies leaves the total momentum (algebraic sum) of the two unchanged. Here again great accuracy is not attained, but the exercise goes well enough to prepare the student's mind for the acceptance of the law, by making him familiar with the ideas involved and by forcing upon his rebellious mind, through experimental evidence, the fact that one body struck at rest by another may acquire more momentum than the striking body had before the meeting. The student usually opposes this proposition at first, because he has an indistinct idea of the conservation of energy and confuses momentum with energy. An exercise which will convince him that momentum is not the same as kinetic energy is a valuable one. These experiments in dynamics are followed by one intended to enforce the scientific definition of *work*, and to illustrate in a simple way the conservation of energy.

No small effort was made at first to teach by experiment the laws of acceleration under a uniform force, marbles rolling down an inclined groove being used for this purpose; but after a trial for one year this attempt was abandoned, partly from the experimental difficulties encountered, and partly from the logical difficulty of making the experimental results, even when satisfactory, reveal the laws in question.

The course at present contains forty-six exercises, twenty-one of which are in mechanics, including hydrostatics. This may appear to some a number relatively too large for mechanics, but when we reflect upon the extent to which we are visibly dependent upon mechanical laws, and upon the fact that physicists consider no phenomenon of their science satisfactorily accounted for until it can be explained as a mechanical effect, it will appear that the amount of time devoted to matters of such importance is well spent. Many a young student would like to begin and end the study of physics with electricity and magnetism, and in this he is right, if the ambition of his life is to become a low-grade employee of some company dealing with the practical applications of electricity; but if he ever reaches such an intellectual height as to catch a glimpse of the pioneer thinkers who are working out the *science* of electricity, he will find them engaged with such homely matters as elasticity, friction, and inertia.

There are eight exercises in heat, four in sound, six in light, and seven in electricity and magnetism. It would be wearisome to go on farther with a discussion of details. The course frankly omits many things which are treated in most text-books, some as being unimportant, others because they do not easily lend themselves to a quantitative treatment, others because they can be taken up to better advantage later in the student's career. The laboratory work should, therefore, be supplemented by many lecture-table experiments performed by the teacher in the presence of the class.

I am not prepared to maintain that the course is the best conceivable, or even the best practicable, for all schools. It is, however, one that has been fairly successful, fulfilling in a large measure the expectations of those who laid it out; but a very large part of the credit for its success is due to the physics teachers of the preparatory schools that have given it a trial. They have with few exceptions met the difficulties of its establishment with courage and energy. They have borne the added labor which it imposed upon them with great good will. They have in many cases improved the apparatus or methods suggested in the college pamphlet describing the course; and, profiting by experience and by suggestions from the college examiners, have steadily raised the standard of their pupils' work until a very respectable degree of proficiency in the handling of apparatus is now shown at the admission examinations. A large majority of those now admitted to the Freshman class have taken this laboratory course in the schools, although a text-book alternative is still accepted.

An important feature of the college rules as now administered is this, that any student presenting himself for examination in elementary experimental physics may claim exemption from all examination upon any six of the exercises described in the college pamphlet. This arrangement gives a certain degree of elasticity to the college requirement, and greatly lessens the friction encountered in its enforcement.

The admission examination in experimental physics is a rather formidable affair, for the college officers as well as for the students. Every candidate offering this subject is subjected to a written examination of one hour and to a laboratory examination which may last considerably longer than one hour. The laboratory examination is managed as follows: a list is made out assigning to each candidate the exact time for his appearance at a certain room. Arriving at the appointed place he meets a certain examiner, who assigns him a certain task and notes his success or failure therein. The candidate then passes to another table, where he meets a second officer, who will assign him a different experiment, and so on. During the busiest time of the admission period five examiners are employed in this way, and can deal with about seventy-five candidates per day. To examine three hundred or more a year is no slight task. We now begin the examination of candidates from neighboring schools some days before the regular examination period is reached.

Some will doubtless ask whether all the labor of preparation on the part of the schools and of examination on the part of the college is well repaid by the results attained. I think it is, and that it will continue so, provided there can be maintained between the schools and the college a sympathetic understanding, a willingness in the schools to teach in the way best for the pupil without regard to the easiest way of getting him through examinations, and a readiness in the college to abolish restrictions and requirements that experience may show to be unnecessary and burdensome.

The labor of conducting the admission examination in experimental physics might be considerably reduced if the sole object of this examination were to determine whether the candidates shall pass or fail. But at Harvard the examiners undertake to determine and declare whether a candidate *passes* or *passes with credit*, *fails* or *fails badly*, and this requires a pretty thorough examination. Moreover, the examinations in experimental physics have served the very important purpose of *creating* a standard of work for the schools. Many schools are now familiar with this standard and conduct their courses accordingly, but almost every new school that adopts the laboratory method of teaching has to be toned up more or less before its candidates give evidence of satisfactory training.

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III

REFORM IN MODERN LANGUAGE INSTRUCTION

The teacher who has the time or the inclination to wander into the byways of pedagogic history will find a story of rich, indeed of pathetic, interest in the field of modern language instruction. Time out of mind this insoluble problem has lured new adventurers into its toils, and has deceived them with an absolute confidence in their method of solution. Enthusiasm is indeed pardonable; who would not envy the hero that could repair the mischief of Babel and enable the simplest of mankind "in less than six months" to break down the barrier of a foreign tongue? The teacher of history or of science has no such goal before him; only the modern language teacher can boast of a service which may unite the scattered nations of a globe.

On no other ground can we explain the fascination that this problem has had for men of that special order of mind which squares circles and transmutes lead into gold: the one-idea men, endowed with extraordinary strength of will, and with unflagging industry, accompanied by a fatal narrowness of vision which permits them to see nothing but folly in the labors of their precursors, and which magnifies the worth of their own discovery until they believe it to be the one thing needful.

Such a man is M. Gouin,[1] whose book in its English translation has recently provided a sensation for the *Review of Reviews*, and has, by the aid of this advertisement, already reached a second edition. The reader, careful of posterity, will keep his Gouin; for fifty years hence it will be as much prized by the bibliographer of pedagogics as Dufief,[2] and Marcel,[3] and D'Arcy W. Thompson[4] are now. I urge teachers to purchase this book, not only for the many grains of truth which the author mixes with his chaff, but because the vigor and originality of his attack will force the language teacher to think for himself. I am tempted to brighten my pages, and defend my judgment of M. Gouin, by quoting from the singular autobiography with which the *method* is introduced; but it may be sufficient to say that before he hit upon the great discovery, he had been studying German in Germany for six months without being able to "follow a word" in a professor's lecture. He even learns by heart a dictionary of 30,000 words, in four weeks, and still fails in his desperate task.

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[1] Gouin, *Art of Teaching and Studying Languages* (New York: Charles Scribner's Sons, 1892).

"Ruined in eyesight and in health" he goes home to France and finds that his little four-year-old nephew, who was too young to speak when M. Gouin departed for Germany, has in the interval actually acquired a language, his mother tongue, French. The phenomenon overwhelms him, as it might well do. He, an educated man, has failed after a gigantic struggle to learn a sentence of German, and this infant during the same interval has acquired an entire language. He studies the little child for an hour or two, and at once the problem which has baffled him, and with him the whole world, is solved. Solved, once and for all!

The errors of reasoning that thereupon follow may be left to students of pedagogics to detect; the task will not be difficult.

I shall do better here if I indicate a few questions which this book brings into relief. First of all, M. Gouin obliges us to consider the fundamental question, What is speech? He encourages us to follow the track upon which pedagogics is now fairly started, of working back to the beginnings of mental life.

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[2] *Nature Displayed*, by N. G. Dufief (13th ed., London, 1833).

[3] *Méthode Rationelle*, and other works, published in London and New York (1850-60) by Claude Marcel, Consul at Cork, Ireland. They contain much sound pedagogics and anticipate a good deal that has been said and done since in modern language teaching.

[4] *Day Dreams of a Schoolmaster* (Edinburgh, 1864), one of the most fascinating and clever books on language teaching ever written by an Englishman.

His experiments and researches are crude enough, but it is something to have a pedagogic proposal based upon actual observation and experiment. Again, his cardinal principle "that the ear is the natural organ, the first organ, of language" is true enough, although he ignores the fact that, since the discovery of printing, the eye has almost taken the place of the ear in the case of men who read much and talk little. The difficulty, of course, is not in the acceptance of this principle, but in finding a way to put it into practice in class teaching. M. Gouin's way is the Series Method, which, to be brief, is mainly nonsense.

Whatever success has attended M. Gouin's classes is probably due to a circumstance which is not made prominent in this book, but which (as I have been able to learn on further inquiry) is a leading feature of this instruction. It is that the teacher and the pupils speak only in the foreign language. In the first lessons given in *The Art of Teaching Languages*, the mother tongue is constantly made use of; but I understand that after these first lessons are over, the foreign language is really employed as the exclusive medium of intercourse.

After this explanation M. Gouin will seem, to the American teacher, to be a little behind the times, for Heness, Sauveur, Stern, Berlitz, and others have been familiar names for some years; but M. Gouin is a discoverer, and not an inquirer; he has nothing but contempt for the few workers in the same field as himself (Jacotot, Ollendorff, and others) whose efforts have been brought before his notice.

Let us, then, give this extraordinary teacher his due; he is probably the first teacher in France, and almost the first in England,[5] to follow the maxim "Avoid translation." He recognizes that foreign speech, equally with native speech, is "the expression of thought by words" and not the expression of some words by other words. This view, which is the unfettered view of anyone who should approach the subject apart from the recollections of his own school instruction, contains within it all that is good in the newer proposals for reform. The symbols now produced on this page are an expression of my thoughts in an English shape; if you, my reader, are an Italian by birth and education, there is absolutely no reason why you should refashion my thoughts into an Italian shape before they enter your consciousness. They will not do so unless you have learned English improperly. If you have learned English as a study in comparative *science*, you will at this present moment be turning good English into bad Italian; if you have learned it as a useful and as a fine *art*, you will interpret my words as they stand, and you will not only accept the principle now enunciated, but you will unconsciously be adapting your mind to English ways—not only ways of speaking, but ways of thinking and acting.

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[5] Melliet, *Le Français par le français* (Edinburgh, 1888), is the only English teacher I have heard of who does so. And his book is only a one-idea book.

It is interesting to see how this view of language is influencing instruction in the United States. It is unnecessary to refer in detail to the work of the Natural Method teachers, but an able pamphlet by Professor Hale[6] recently published shows how widely their views are spreading, even among teachers of Latin and Greek.

It must be observed that a great many teachers engaged in imparting French and German have really no title to decide upon the question here raised, as to the nature of a foreign language, for they themselves are not sufficiently acquainted with the subject in hand—they are not experts. It is not sufficiently borne in mind that the teacher as such is not qualified to give a final opinion as to the value of any method of instruction in a given subject until he is himself a thorough master of the subject. The chemist must tell me what chemistry is, and can tell me whether, in any given instance, it is being acquired; the experienced teacher may then step in and discuss from the pedagogic standpoint the value of this subject of instruction and the method. I take it that Professor Heness and the rest owe their success as teachers to the fact that they carefully observed the processes by which they themselves had acquired

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[6] *The Art of Reading Latin* (Boston: Ginn & Co., 1892).

English.[7] To their evidence we may add that of many public men, especially artists, such as Hamerton,[8] and diplomatists, such as Lord Dufferin, whose opinions have not been warped by a scholastic environment.

While, however, the expert helps us to determine the nature of foreign speech, we need all the resources of pedagogics in formulating our method. And here, as it seems to me, the Natural Method teachers are at fault. Not that they are behind the times in this respect, for their opponents, who adhere to translation, do not usually look to pedagogics as a guide to instruction. But reformers need ever to be reminded that one good idea of itself will not achieve victory. However right this "Natural" idea may be, it must be developed into a system of principles of instruction, which may guide teacher and pupil in the ordinary work of school instruction. The mere production of a series of books used in Schools of Languages or in certain colleges is not sufficient. It is true that Professors Stern and Wenckebach show their indebtedness to Pestalozzi, and make good use of the doctrine of *Anschauung*, but this does not cover the whole requirement.

Indeed we venture to question whether some of these teachers, successful and capable as they are, fully appreciate the strength of their own position. For they use this unhappy term "Natural," which suggests the vulgar heresy that we should follow Dame Nature when she teaches our infant lips to talk, whereas we neither can nor should do anything of the kind. This method of teaching a second language is no more natural than a right method of teaching carpentry or swimming is natural. The acquirement of a second language by one who has already learned a first is an entirely artificial process, as much as the art of painting on canvas. In both cases the art product if good has a very "natural" effect. Analogies are useful, but are often misleading; in education, as in politics, they have worked great mischief.

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[7] Professor Stern in *Studien und Plaudereien* (New York: H. Holt & Co.) relates his experiences on first reading Dickens.

[8] *The Intellectual Life*, chaps. vi–viii.

If we now turn our attention to the multitude of other text-books in America and Europe we may classify them according to the extent to which they have yielded to the demand made by the principle above enunciated; most of the text-books attempt a compromise; language is still taught as a science, but it claims more and more to be taught as an art also. The strictly othodox teacher of the older school has almost disappeared, and one must regret this, for he had consistent theory, which he applied unflinchingly. He produced grammar and dictionary and set to work therewith to perform the psychological process which he described as "disciplining" the mind, or cultivating the "mental faculties," by a steady programme of grammar, vocabulary, translation, and composition. Give him time and patience, and one boy out of ten would learn the language in spite of the discipline. Between this extreme and that of the Natural Method (which, be it noted, allows you to learn as much grammar and philology as you please, so long as you do it all in the foreign tongue!) we may place all the current systems now in vogue.

Let us take the most popular, Otto's German Conversation Grammar, as the type of hundreds. As the title and the preface show, the author endeavors to kill two birds with one stone. For the sake of the mental faculties he gives you a grammar, arranged according to the traditional order of grammar material; for the sake of the art of conversation an immense number of questions and answers are printed. A book in its twenty-fifth edition must be high in popular favor, but I venture to assert that it is mainly employed by teachers who are not experts, but who are themselves learning. What teacher with a real power of using the German language can endure to wade through pages of irregularities and exceptions in noun and adjective before being permitted (on p. 123) to read a fragment of real German writing?

A strong reaction has, however, set in against the so-called practical methods of Ollendorff, Ahn, Otto, and the like. During the last ten years a multitude of books have appeared which rely upon an inductive principle. The ablest of these have been written by classical language teachers,[9] but the principle is being developed just now more consistently by the moderns. It has formulated the axiom, "The reader is the center of instruction," and seeks to follow a course closely analogous to that of chemical analysis. The logical result of the process is not a power of speech or writing, but a discovery of the facts of grammar. The principles of this school were, I believe, recently expounded in this review by Professor Sonnenschein,[10] who has edited a series of grammars and readers for the use of classes adopting this system. The other feature of these books to which Professor Sonnenschein attaches so great importance is the uniformity of grammatical terminology. This is no doubt a matter for consideration, but it need not detain us here.

Now, closely associated with these reformers, we have another school whose headquarters are at Marburg[11] in Germany. Professor Vietor in Marburg and Professor Passy in Paris are the leaders of a movement that has achieved great things in Germany, and will achieve greater. The Germans love to write and to print, and not only have the *Neuphilologen* published during the last ten years a countless number of school text-books, but there are at least three hundred pamphlets to be read dealing with the question of the method, all written since Vietor's famous *Quousque tandem.* In a recent letter to the London *Journal of Education*, Professor Vietor sums up the principles of his neo-methodic followers in this way: "The *sounds* are taught before their symbols, the *reader* is the center of instruction, the grammar is learned inductively from the reader." And we may add that composition (*i. e.*, translation from the mother tongue into the foreign tongue) is condemned. Briefly, these German reformers have broken with old traditions and are feeling their way toward the Heness-Sauveur principle (of which, by the bye, they do not seem to have heard), but are still hampered by the initial difficulty, which I regard as the central problem of all—they are teaching English and French as a subject of study, as a *wissenschaft*, rather than as an art.

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[9] See Macmillan's Series of Elementary Classics as an example.

[10] EDUCATIONAL REVIEW, Vol. III: 450.

[11] Vietor, Passy, and others. A quarterly journal, *Phonetische Studien* (Marburg; N. E. Ehvert), is edited by Professor Vietor in the interests of his reform. [Professor Vietor has in preparation an article descriptive of his method for the EDUCATIONAL REVIEW.—ED.]

Only in this way can we explain what in my opinion is a most serious error—the introduction of the phonetic *schrift* into elementary text-books. The neo-methodic teacher claims, rightly enough, that the " sounds should be taught before the symbols," meaning thereby that the *auditory* symbols should be taught before the *written* symbols. But how does he proceed to teach these auditory symbols? He carefully formulates a new *wissenschaft*, with another set of written symbols, and hopes to teach his pupils to hear and speak by means of these. Surely the error would be apparent if the German professor were not so blindly devoted to his *wissenschaft*.

In fact we have here an old heresy in a new shape. Formerly the science of grammar was taught instead of the art of foreign speech; now it is the science of phonetics. Fortunately this last science is not likely to run so long a career as the first; so far as I have been able to follow the controversy, very few followers of the Marburg school are seriously attempting to burden their pupils with this science. Neither phonetics nor grammar can be pursued as independent subjects of study except by scholars who have already acquired the language. Apart from this fault, characteristic enough of German methods, we must admit that the neo-methodic reformers are offering valuable contributions to the problems that beset us in language teaching.

Let us, finally, in a series of questions state some of the problems that still remain to be considered before the controversy can be laid to rest.

1. The primary question of all is the *purpose* of modern language instruction, although, singularly enough, it is the one which is least prominent in the literature of the subject. Let us narrow our inquiry so as to exclude commercial and technical schools, which impart languages simply for business pur-

poses, and consider the wants of general secondary education. These are the two views, and we must decide between them.

The old school regard the foreign language chiefly as a weapon to sharpen mental faculties, and, subordinately, as an art which *may* be useful in later life. The new school regard it entirely as an art, of no value in itself, since it is only a symbol tool, but invaluable as a key to the history, the culture, the life of a great and noble nation. As such they demand that the pupil shall from the first moment be brought into living contact with this nation by hearing and speaking its language, and get at its ideas, quite apart from the ideas and language of the mother country.

2. The question raised by M. Gouin demands much deeper investigation and more elaborate experiment. Our new science of physiological psychology must come to our aid, and tell us what it can about the processes of hearing and writing. As I at this moment write this page, I *say* every word within myself; the reader, if he is not an Englishman, will also *say* the words as he reads; if he is an Englishman he will probably do so; but he may not. Investigation from this standpoint will settle for us whether the eye or the ear is to be chiefly employed in imparting a foreign lauguage.

3. Closely associated with this inquiry is the question of the relation of ideas to words. Many will deny that a foreigner is able to associate his ideas (of number, for example) with any other language than his own, and hence they infer the necessity of translation. The controversy must be settled by experience, since our knowledge of brain processes cannot at present assist us. I possess evidence quite satisfactory to myself that an English boy after learning German for ten lessons can, *during the lesson*, "think in German" on certain simple selected topics without calling up the mother speech. But every teacher must make his own experiments; until he has done so, at least in his own person, he cannot judge of the question at all.

4. A question of practical importance in relation to reform is one which is affecting the teacher more seriously, perhaps, in Germany and England than in America: the *freedom of the*

teacher to choose his method, and to be examined upon that, and not in accordance with an official regulation. This question, of course, is one that affects the whole realm of pedagogics, and its importance can scarcely be exaggerated. For we have now reached a point where progress in education depends upon investigation and research quite as much as upon moral enthusiasm and personal gifts. Until a large number of exact, carefully recorded experiments can be made, extending over months and years, we cannot finally decide the problems which now surround the teacher's desk.

My purpose, therefore, in writing the present article, is not to offer another to the many printed contributions on this topic, but, if possible, to incite the teacher to make and to record experiments, in the belief that problems of instruction will finally be settled, like many other puzzles in our life, not by opinion, but by fact.

At the same time we cannot look to experiments alone for guidance, more especially when we investigate the primary question of all as to the purpose of modern language instruction. After a teacher has come to a decision, first of all, as to the general nature of his calling, as to the real meaning and purpose of his life's work among children, there is perhaps no other question which so presses for an answer as the one here raised: the claim that each subject of instruction has to be taught *for itself*, and according to its own nature. If languages, ancient or modern, are essentials, arts of speech, and if our books are merely crude symbolic representations of the living voice, then they must be handled and taught as such. Any theory of training the faculties, memory, reason, judgment, and the like, which militates against this claim must be closely questioned.

This claim has been made, and has been substantiated, by the teacher of science; it has given us the laboratory, and has condemned the parrot repetition of the science text-book. It has been made in the United States by the teacher of the English language, and has given to the children of America an acquaintance with poets and orators to which the children in the mother country are entirely strangers. It must be also made by the teacher of French and German when he has broken through the language and has learned at first hand to know the worth of the people whose voice has reached his ears. Let that claim be steadfastly made, and our pedagogic psychology will help us to develop a plan of instruction which will satisfy the demands of modern languages without imperiling the development of our children's faculties.

I must not leave my subject without dealing still more directly with the qualifications of the modern language teacher. Not the least of the benefits resulting from the reform movement in Germany has been the impetus given to a better training of French and German teachers. The question has been discussed in the last *Neuphilologen Konferenz* held in Berlin, and the result has been put together in an able pamphlet, *Die Aufgabe der neusprächlichen Unterrichte und die Vorbildung der Lehrer*.[12] In the theses with which Dr. Waetzholdt's address concluded, and which were approved by all sections of modern language teachers, we have a clear recognition of the necessity that the teacher should be acquainted not only with the foreign language, but, through the language, with the foreign people. He discusses very ably the duty of universities in this respect, and the desirability of foreign residence and foreign travel. The French Government is already sending a number of teachers year by year to Germany and to England, and some of the German States are following suit. Slowly but surely the conviction is gaining ground that the most important problem in education is the problem of creating the teacher. And to this end he needs not only a practical professional training in pedagogics, but a scholarly acquaintance with the material of instruction.

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[12] By S. Waetzoldt (Berlin : Gaetitner's Verlag, 1892).

IV

PUBLIC SCHOOL PIONEERING IN NEW YORK AND MASSACHUSETTS

A FINAL REPLY

At the meeting of the Department of Superintendence of the National Educational Association at Philadelphia in February, 1891, Mr. George H. Martin read a paper on "Compulsory Education in Massachusetts" in which he climbed over all the fences and gathered all the educational flowers that ever bloomed, in an effort to make a fitting wreath for the brow of Massachusetts. He failed to tell just what Massachusetts had done or was doing to insure the attendance of the children of that State upon the schools, but did not fail to insist that all good things had had their beginnings in Massachusetts, and that all American educational movements had been inaugurated and led by that Commonwealth. He was profoundly grateful that other States had had the good sense to follow in her lead. His paper was grammatical and rhetorical, and took the crowd, but there were persons present, and not a few of them, who well knew that his claims were not supported by the facts. When he said

> Reviewing the evolutionary process from the beginning, we note that there have been six steps: compulsory education, compulsory schools, compulsory certification of teachers, compulsory supervision, compulsory taxation, compulsory attendance; and it seems that Massachusetts took each of these steps in advance of the other States—a little in advance of her sister States in New England, far in advance of all the others,

there was a strong, if not open, dissent.

The protest of New York was framed by me, in the EDUCATIONAL REVIEW[1] under the title of "Public School Pioneering in New York and Massachusetts," in which it was attempted to show that "America is indebted to the Dutch rather than to the

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[1] April, 1892.

English for the essential principles of the great free school system of the country, and that in the several most important steps which have marked the establishment and the development of that system, New York and not Massachusetts had led the way." Many facts were adduced from the original records, and the highest historical authorities, and citations were given in support of the facts. Mr. Martin replied in the EDUCATIONAL REVIEW,[2] with platitudes and generalities mixed with curtness and a show of indignation, but managed to dodge the real points in issue and to avoid the matters for which he had been most severely criticised. In a second article in the REVIEW[3] he was sharply called to account for this: the precise points upon which he was disputed, and which he had again failed to support with proofs or citations, were pointed out, and he was told that he must stop talking in a glittering way about remote things, but meet the issues and support his allegations with proofs, and proofs which could be found upon investigation, if he expected his claims to be recognized. This has brought out his third paper in the REVIEW,[4] in which there is an apparent recognition of the necessities of his situation. He has been looking for facts, with what success we must now inquire. It may now be assumed that he has said all that he can say, and we are now in position to make comparisons and gather up the results.

But first we must throw out some make-weights which should not have been put upon the scales at all.

The recklessness with which Mr. Martin assumes to state facts is something amazing. For instance, he says I have "represented England to be schoolless in the sixteenth century"; no such thing has been represented. Everyone familiar with English history knows that for centuries it was the policy of the English Government, dictated, of course, by the nobility, to maintain colleges, with high schools as feeders, at which a few might be elaborately educated for the purposes of the state and the Church, an institution of the state, but to keep the masses in ignorance for fear they would learn their rights and

[2] June, 1892. [3] October, 1892. [4] March, 1893.

demand them. This I stated in so many words in my first paper in this discussion. In this and other things he contradicts, not what I have said, but his own erroneous version of it.

But he goes farther and sets up men of straw, and then engages in an alleged effort to knock them down. He has not hesitated to place phrases and sentences within quotation marks, thereby indicating that they were my precise words, although they were very different from my own words, and were changed to suit his purposes and to enable him to appear to make a successful answer.

As an illustration of this let us read the two following paragraphs from his last paper:

> The fifth step was *compulsory support by taxation*. Mr. Draper says of this that he can find in the Massachusetts laws only a requirement that the towns shall raise "such sums as may be necessary," and he sneeringly asks, "How much compulsion is there in this?" More, perhaps, than appears on the surface. It may be observed, by the way, that a law which he did not find requires every town to raise at least three dollars for each child of school age as a condition of sharing in the annual distribution of the income of the State school fund. This may not be compulsory, but it looks in that direction.
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> What is included in the phrase "such sums as may be necessary"? Necessary for what? To meet the requirements of the school laws, namely, to maintain for at least six months in each year "a sufficient number of schools for all the children," "conveniently located," and "properly furnished"; if a town of 2500 inhabitants, to maintain, besides, a high school for ten months, "competent teachers," and to provide freely all the pupils of all grades with "all needed text-books and supplies." Mr. Draper evidently thinks the town is its own judge of what is necessary. Not so; the entire charge of the schools is in the hands of the school committee, who are independent of the town in the matter of expenditure. Save in building schoolhouses, the action of the committee binds the town. This has been established by the Supreme Court in one of its most famous decisions. If this is not compulsory support by taxation then the English language has no meaning which a lawyer is bound to respect.

Now, to build up these two paragraphs, it is not only necessary to misquote me, but to misquote the statute of his State. Section 17 of Chapter 44 of Title 10 of the Public Statutes of Massachusetts is the one in question, and reads as follows:

> The several towns shall at their annual meetings, or at a regular meeting called for the purpose, raise such sums of money for the support of schools as they judge necessary; which sums shall be assessed and collected in like manner as other town taxes.

This statute was quoted by me with accuracy. The reader will observe, however, that the phrase "The several towns shall . . . raise such sums of money for the support of schools *as they judge necessary*" is changed to read "such sums as may be necessary," and then the writer proceeds to say that some outside authority and not the town is to determine what is necessary. It is a sorry extremity which requires the use of such methods. One need not be a lawyer to know that the words "such sums . . . as *they judge necessary*" leaves it entirely at the discretion of the towns to determine the amount to be raised, nor to reason that when it is discretionary with the towns there is no *compulsion* about it whatever.

Nor is the matter helped by the suggestion that the school committee is independent of the town in the matter of expenditures for school purposes, and that the action of the committee binds the town. The school committee is chosen at town meeting, is representative of the town, is responsible to the electors, and will suffer decapitation if it goes contrary to their will. And this is the *independent* authority which determines the sum to be raised for school purposes in the towns of Massachusetts; and this is *compulsory taxation* for schools in that State! And this is the way an agent of the State Board of Education conducts an *argument!*

The suggestion that a law which I had overlooked requires every town to raise at least three dollars for each child of school age as a condition of sharing in the annual distribution of the State school fund, and that this "looks in the direction of compulsion," is puerile. *Compulsion* by a gift! Not a dollar of this State school fund, by the way, was ever raised by taxation. It has resulted wholly from the sale of State lands, from the refund of indirect taxes by the general government, etc. Its income is divided among the towns which will maintain schools. Indeed this distribution is the main reliance of the State in relation to the country schools. By it the rural districts are hired to be good and to send in reports, etc. In the manual of the State Board of Education there appears the following paragraph[5] in relation to this fund, and it reveals how very vigorously the towns are compelled to do this, that, and the other thing in relation to schools, as was asserted by Mr. Martin:

> With the fund it is *possible* to obtain accurate and full returns, and to communicate to the Legislature and to the people all the material facts relating to the condition of the public schools. It enables the authorities to execute the school laws, and to establish a uniform system of schools throughout the Commonwealth. It greatly aids the towns in supporting such schools as the statute requires the towns to maintain.

My opponent remarks that I have referred to this *compulsory* taxation business "sneeringly." He is wrong. I have laughed outright, and had the right to. I have left nothing to inference intentionally, and have no necessity for so doing.

Again, Mr. Martin says, "When Mr. Draper says the masses in Massachusetts grew up in 'dense ignorance' every student of history laughs in his face." I have never said that; he puts words into my mouth which I never uttered that he may be able to say something in reply.

In the close of his paper he pretends to quote a second time the phrase "dense ignorance" as coming from me, and couples with it, as mine also, the term "bloodthirsty intolerance" as applying to the early settlers in Massachusetts. In doing so he is again guilty of an alteration of the record. In my last paper I had said that I regretted "the blind infatuation which, to the disparagement and wrong of others, ascribes to those early settlers works of great national importance utterly inconsistent with the dense superstition and the misguided, even bloody, religious intolerance which are known to have dominated their lives." And when notwithstanding this I express admiration for the Puritan character, he calls it "arrant nonsense." Let us see. Does any reader of Massachusetts history question the moral qualities or the quick intelligence or the heroic character of John Winthrop? Not for a moment. And yet this great man, as Governor of the colony, sat at the head of the court which tried Anne Hutchinson, a pure-minded, womanly woman, about whom there was no suggestion of immorality or hypocrisy, refused her counsel or assistance, browbeat and fretted her, stopped her when she attempted to speak, sought to lead her into pitfalls, and sentenced her to banishment, notwithstanding the fact that she was soon to become a mother and that it was midwinter, for the only reason that she was the most intellectual woman in the colony, and did not read the Scriptures as he did and was guilty of the crime of saying so.[6] Winthrop was not "densely ignorant" by any means: he undoubtedly thought he was truly serving his God; but was not this misguided religious intolerance? And when, in the Baptist persecution of twenty years later, John Wilson, the pastor of the First Church in Boston, sitting as a magistrate, struck Obadiah Holmes in open court, and said, "The curse of God or Jesus go with thee," only because the poor prisoner upon the pronunciation of sentence against him had said, "I bless God I am counted worthy to suffer for the name of Jesus"—was not that misguided intolerance?[7] And when they hanged Robinson and Stevenson, two Quakers, on Boston Common, for no crime at all, and beat the drums so they could not speak for fear of the effect of their words upon the people, and this same pastor taunted and railed at them from the foot of the gallows—was not that misguided, even bloody, religious intolerance?[8] And when they hanged scores, and crushed one to death in a great press for alleged witchcraft, was not that superstition in its most dreadful manifestation? Those were indeed bloody times, but I have not said and do not think those people were *bloodthirsty*, as my friend would make his readers believe.

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[5] *Public Statutes of Massachusetts relating to Public Instruction, with Annotations*, etc., issued by State Board of Education, p. 25.

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[6] *Three Episodes in Massachusetts History*, by Charles Francis Adams, pp. 483–532.

[7] Vol. IV.: *Collections of Massachusetts Historical Society*, p. 47.

[8] *New England Judged* (1661), pp. 122–125, 126, 136.

They were an honest people, but they were misguided, and to persecute was inherent in the Puritan character. Winthrop and his associates were doing in New England just what the king's instrument, Archbishop Laud, and his associates were doing in Old England, and doing it with no less thoroughness and little less horror.

We can scarcely appreciate the common thought of that day. Their religious creed was framed by Calvin, the clearest and most logical intellect produced by the Protestant Reformation. It placed the severest construction upon the Scriptures, and sternly demanded for its deductions the weight of Divine authority. The minister was held to be the oracle of God, and he exacted for the involved enunciations of the pulpit the same reverence and obedience as for the simplest declarations of the Bible. Their observance of their creed, so declared, was severe. All but Puritans were heretics, and heretics were suitable fuel for hell fire. The Puritan settlers in Massachusetts did not come to the new world to found a democracy; they had no thought of it; they came to make a theocracy to their liking, and to propagate the Gospel among the Indians. In the words of the pastor of the Plymouth church in a letter to the people at the Bay, "Oh! how happy a thing it had been if you had converted some before you had killed any."[9] But that was not their way. They would brook no opposition, and they were great fighters for what they believed to be right.

The Puritan was the outgrowth of the Protestant Reformation, he lived in despotic times, he produced the English Revolution, he was accustomed to blood, he was headstrong, intolerant, and unrelenting to the last degree, he would crush foes within and repel foes without, he was capable of cruel acts, but, nevertheless, there was Christian character behind it all.

But so much for Mr. Martin's make-weights and diversions. If we are to follow all of them there will be room for nothing else. Let us allow the others to go for what they are worth, and come to the real question in issue, and see what has been

[9] *Three Episodes in New England History*, p. 99.

alleged and proved and what has gone unchallenged or been admitted.

In the first place, I started out to show that *America was indebted to the Dutch rather than to the English for the essential principles of our Free School System.*

In this connection it was pertinent to show what had been done in the mother countries, at the time of the settlement of America, toward providing facilities for an elementary education for all the people at general expense. It was shown that England was completely under the domination of the sovereign. It was also shown that it was the English policy to maintain colleges and high schools for children of high birth, for purposes of state, but that there were no free elementary schools at all; and on the authority of Bancroft it was stated that the majority of the people of England could neither read nor write, even as late as the latter part of the eighteenth century. Of course this statement as to the English educational policy has not been controverted, for no fact is better known. That policy has continued almost to the present time.

On the other hand, it was shown that popular government had made much headway in the Netherlands, that the country had a republican form of government, and that the "free cities" governed themselves, and it was remarked that self-government and free education have uniformly gone together. This was incontrovertible.

It was shown that prior to the sojourn of the Plymouth Company in Holland, Luther had been commissioned by the government to establish schools for primary instruction, and that the Protestant portions of Germany soon became covered with schools both for primary and secondary instruction; that towns and villages were ordered to "within six weeks find good and competent schoolmasters," and that "such as neglected to do this should be bound to receive the schoolmasters sent to them and provide the usual compensation;"[10] that the "whole population was educated," and that "schools were everywhere provided at public expense, with good schoolmasters to instruct the children of all classes in the usual branches of education."[11] All this was not denied or answered, except that the character of these free schools was derided, which was neither answer nor argument.

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[10] Appleton's *Encyclopedia.*

Here, then, were the essential principles of the free school system completely developed among the Dutch and no vestige of them among the English, and it was believed that my first point was well established.

It must be borne in mind that the whole issue has been over the development, not of colleges and secondary schools, not of general culture, but of elementary instruction for all the people, free of cost to them, under public supervision and at the public expense, and devoid of Church or political influences.

It was reasoned that Englishmen would follow the English educational plan and Dutchmen would follow the Dutch educational plan when they settled in a new land, unless they came with some other purpose, or circumstances and occurrences led them to do otherwise. It was found upon examination that they had no other purpose, that there were no such circumstances or occurrences, and that each did act upon the ideas and did follow the plans which prevailed in the mother country and the fatherland.

It was made clearly to appear that upon the settlement of New Amsterdam, or New York, free elementary schools were sustained out of the public moneys of the colony. Professional schoolmasters were sent for, to come from Holland, and they did come and teach such schools. Although the colony was very feeble for fifty years, even more so than at Plymouth, there were in that period of time, almost continuously, public schools free to all, maintained and managed by the colony, and the law of the colony required that "each householder and inhabitant should bear such tax and public charge as should be considered proper for their maintenance."[13] No answer was made to all this by Mr. Martin except derision of these old schoolmasters because they at times found it necessary to resort to other employments, which was neither answer nor argument.

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[11] Broadhead's *History of New York*, Vol. I. p. 462.

[12] *Dunshee School of the Collegiate Dutch Church*, p. 32.

[13] *New York Colonial Documents*, Vol. I. p. 112.

Here, then, was the introduction of the essential principles of the free school system into America. These schools continued to be maintained upon Manhattan Island, and when new settlements were made out on Long Island or up the North River, similar schools were established and continued there until England, with the help of New England, overthrew the Dutch government and set up its own, and then for more than a hundred years, and until the English power was broken in America, nothing was done for free schools in the colony of New York which the English authorities could prevent. The Dutch representatives in the colonial legislature frequently made strenuous efforts for schools, and these were uniformly met by the interposition of the English Governor pursuant to a policy deliberately determined upon and invariably adhered to, in order "to prevent the growth of republican principles," as was frankly declared by the Governor to the home government in his letter transmitting the request for a charter for King's College. No part of all this has been denied by Mr. Martin, for a very sufficient reason.

As the Dutch settlers of New Amsterdam paid much attention to elementary schools from the beginning, and no attention to colleges or to secondary schools for forty years, so the English settlers in Massachusetts set up a college sixteen years after the first settlement at Plymouth, but did nothing in the way of elementary schools for many years longer.

This last statement caused a painful exhibition of nervous excitement on the part of my opponent. All the force of the opposition has been concentrated upon an effort to resist it. Even the ludicrous spectacle is presented of a son of Massachusetts putting Plymouth Rock and the Pilgrim Fathers outside of the old Commonwealth in order to parry the effect of it; for Mr. Martin says, "Plymouth was not Massachusetts until 1692, and for all the purposes of historical inquiry is as distinct as is Connecticut or New York itself." I am justified in retorting with his favorite epithet, "arrant nonsense." The history of the English colony at Plymouth is as much a part of the history of Massachusetts as is the history of the colony at the Bay or any other colony which finally entered into the formation of the State.

I am at a loss to understand how the first Massachusetts settlers could have been expected to do otherwise than follow English customs. They were not essentially different from the people they left behind them. In the matter of education and schools they were not different at all. They had no conception of the free school idea; they were utterly incapable of it. Circumstances made it so. The Puritans were characteristically slow and steady. They did not change easily or quickly. It took time, and a great length of time, and an entire change of circumstances, to bring about the necessity and the desire for an educational plan different from that of Old England. They made no pretense to anything else, nor did they do anything for many years from which such an inference can be drawn.

The colony at Plymouth lived fifty years and grew to a dozen villages before there was a school of any kind in it. Mr. Martin wrote one reply without denying this. Now he says it *was only fifteen years or twenty-five years*, and says he relies upon "court records" to prove it, but neglects to tell us where to find them. Mr. Winsor, in his *Narrative and Critical History of America*, says "Neither from tradition nor from public records is there evidence of any opportunity or provision for education [in the Plymouth colony] prior to 1670, except, of course, in the private family." This would seem conclusive.

In passing, it may be well to touch upon Mr. Martin's reference to Mr. Douglas Campell's recent work, *The Puritan in England, Holland, and America*, in this connection. Mr. Campbell's great work traces our distinguishing American institutions to their origin. At great pains he clearly shows that the modern public school system originated with the Dutch. *Mr. Martin passes this by.* But in the first edition of his work Mr. Campbell fell into the error of saying, "When the Pilgrims from Holland landed at Plymouth, one of their first acts was to

[14] Vol. III. p. 281.

establish a common school,"[15] and Mr. Martin quotes this with great glee. The author was not considering at what port of the country the school system was imported, and he had heard so many times that there was a school set up at Plymouth Rock immediately after the landing that he felt justified in assuming it to be true. But he has evidently discovered his mistake, for in the second edition of his work, now upon the market, he substitutes for the above quoted sentence the following: "The early settlers of New England paid great attention to instructing their children, *first* at home, or in ministers' houses, and then in public schools." Even now he does not state the facts as strongly or plainly as the truth requires.

In the colony of Massachusetts Bay there was comparative wealth and an educated clergy. The Church and state were one. There were plenty of brains and plenty of means there. And what did these people do for schools? They did nothing whatever for eight years. By that time there were fifteen thousand people there. Then they set up Harvard College. This was the English plan. They commenced to prepare young men for the ministry and the offices of state, just as the home government did. Then they started the Latin school to prepare young men for the college. After making this move they rested, and they rested a long time. This Latin school was the only school in Boston for fifty years. Social distinctions were as marked there as in Old England. "Winthrop, in his state papers, talked of 'the common people.' The 'common people' were whipped and set in the stocks; the 'gentry' were fined and admonished."[16] The sons of "persons of quality" (the term was common at the time) were sent to the Latin school and the college. There was no school provision for the children of the poor for a long, long time. In Puritan fashion the people were enjoined to teach their children to read, or to get someone to do it, so that they could read the Bible and learn the catechism. This was done at home or by the ministers. There were no organized elementary schools in Boston, free or otherwise, for certainly more than fifty years, and when such schools were opened they were only for boys. Upon the authority of Winsor's *History of Boston* and the proceedings of the Massachusetts Historical Society, I stated that Boston did not admit a girl to her schools till 1789, and to only half privileges till 1828. This is not denied. There was no public school system there.

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[15] *The Puritan in England, Holland, and America*, by Douglas Campell, Vol. I. p. 30.

[16] *Body of Liberties*, 1641; 3 *Massachusetts Historical Collections*, VIII. 224.

Accordingly it is confidently submitted that it is abundantly established that the essential elements of the public school system were first developed in the Netherlands, and had their first exemplification in America among the Dutch at New Amsterdam, and not among the English in Massachusetts.

Now a word about the six points, "compulsory education, compulsory schools, compulsory certification of teachers, compulsory supervision, compulsory taxation, and compulsory attendance," upon which Mr. Martin insisted that Massachusetts had been in advance of all other States. It is noticed with satisfaction that he has been forced to drop rhetoric and look for facts.

As to compulsory education and compulsory schools, the ground has been well traversed. It has been shown that in the first seventy years of Massachusetts history the real power in the State was that of the clergy. If there was any school at all it was a Latin school and not an elementary school, and was for the purposes of the church and not for the good of the individual; if there was any teacher he was the pastor or assistant pastor of the church, and he taught the Latin school or went about to see that the children were taught to read the Bible and learn the catechism. During this period all young men attending the Latin schools had to pay. There was no element of the free public school system about the plan. It had the element of mission work, but there was nothing "compulsory" worthy the term, and whatever there was of it was to promote a religious and denominational end. And while this thing was going on in a colony of twenty thousand Englishmen the little Dutch colony of seven or eight hundred souls at

New Amsterdam was maintaining free elementary schools and punishing those who failed to pay their taxes in support of them.

Mr. Martin undertakes to support his claim as to priority in requiring the certification of teachers by a "province law of 1701," wherein "it was ordered that every *grammar school* master must produce a certificate of qualification from the minister of his town." He says the "ministers were the only persons competent to examine in Latin and Greek." How this agrees with all I have been saying! Where were the elementary schools? How did the ministers become expert or professional school superintendents? Why, all towns at the organization period have done the same thing. And this is all that Massachusetts did, and is more than she is doing now. School committees, elected by the people, employ the teachers and determine their qualifications. There is no certification of teachers in that State as the phrase is used by the schools. Even the normal school diploma has no legal value. And yet New York for more than eighty years has provided special officers in all the towns or counties, who have nothing to do with employing teachers, to certify their qualifications, and in all that time no employment has been legal which has not been preceded by a certificate issued by an officer specially chosen for that purpose alone.

He also talks about *expert professional supervision* by "selectmen and ministers," which every school man knows is "arrant nonsense," and then he proceeds to slur the supervisory officers of the State of New York because the people see fit to make a change once in a while rather than to let them stay in place and go to seed. With some knowledge of the school superintendents, in city and country, of the State of New York, I have no hesitancy in saying that no stronger, more competent, or more devoted body of school men can be found in any State in this country, even though they have not been in office forever. And with some knowledge of affairs, and of the common expressions, of the school men and the people in a neighboring State, it may safely be said that there ought to be some relief afforded by which they can make a change once in a while. It is enough to say that New York has had close and compulsory supervision of her schools, both general and local, over every foot of her territory for more than eighty years, while Massachusetts has none and never had. On the contrary, her State Board and its Secretary and Agents have no authority essential to supervision; her cities have superintendents only when their local committees think well, and in fact are at times without them; while her rural districts have none at all.

The next step is *compulsory taxation*, and I have already adverted to that, and perhaps sufficiently. We have seen that the Dutch colony at New York, in the very earliest days, levied direct taxes for schools, and the State commenced to levy State taxes for schools in 1795, and required towns to do the same. Massachusetts never levied State taxes for schools, and the amount to be raised by towns is wholly in their discretion. In the language of the statute, towns raise "such sums as they judge necessary," and in the language of the Manual of the State Board of Education, "the town is to judge of the needed expenditure."

As to *compulsory attendance*, I have not been disposed from the first to contest Mr. Martin's claim. I practically admitted it in my first paper and made no reference to it in my second. The fact is Massachusetts made a truancy act in 1852 and New York in 1853, and Massachusetts a compulsory attendance act in 1873 and New York in 1874. His claim that his State was twenty years ahead in the movement is not well grounded. But honors are easy between us on that point, and neither has done enough to brag of.

And so it appears that at least as to five of the steps in the development of the free school system selected by Mr. Martin as the ones touching which his State had been foremost, he was simply indulging in rhetoric and was sadly lacking in facts. Still he undoubtedly believed what he said. He had certainly heard about the same thing a great many times. He had reason to believe also, it must be admitted, that no one would contest anything that might be said touching the pre-eminence of Massachusetts in all things.

The State is the only power which can *compel* the support of schools, and Massachusetts does not compel at all. The whole matter is left to cities and towns and to their "Committees." And cities and towns in that State are not so very different from cities and towns elsewhere. And such matters proceed there about as they would elsewhere under like circumstances.

The cold fact is that the story about all good things originating in Massachusetts has been too highly colored. The constant talk about her early and later pre-eminence in school work is overdrawn. Others are beginning to see it, and so are many of her own people.

Concerning her earlier school work a very jealous and proud son of Massachusetts, Mr. Charles Francis Adams, in his recent book, *Three Episodes of Massachusetts History*, says: "Prior to 1800 in point of fact the children were neither taught much nor were they taught well, for through life the mass of them could do little more in the way of writing than scrawl their names." And again, "If by any chance the village school of 1790 could be brought back to 1890, parents would in horror and astonishment keep their children at home, until a town meeting called at the shortest notice could be held; and this meeting would probably have culminated in a riot, in the course of which schoolhouse as well as school would have been summarily abated as a disgrace and a nuisance." I might quote some very recent criticisms upon the elementary schools of Boston from eminent authority, but will forbear.

In this discussion, which is now brought to a close, so much has been said about the past that a single word as to the future may not be improper.

Undoubtedly the high schools of Massachusetts are excellent, models for the country, as might fairly be expected, but so much cannot be said with truth for the elementary schools of that Commonwealth; and as the school men of the country know something of the facts and are for the truth, they do not like to hear it said at all.

The school work in other States, including New York, is not what it should be by any means, and no one has said so more frequently than I have. The school people of other States are ordinarily the first to admit it. That fact being known and admitted there is ground for hope and progress. There is progress throughout the country wherever the fact is admitted.

The towns of Massachusetts have nearly all outgrown government by town meeting. When the electors of a town come to be numbered by thousands they connot assemble in town meeting and intelligently transact public business. Even if they were entirely homogeneous in sentiment and feeling—and they are so no longer in Massachusetts—they could not continue to manage their public affairs in the old way.

Regardless of this last consideration, the modern free public school is not the child of a town meeting. It is not a local institution, and it cannot safely be left to the exclusive management of town meetings or local committees. It is part of a general system necessarily maintained by the highest authority for the general safety. In the present and the prospective circumstances of the country, certainly, it cannot be adequately supported and managed except by authority which the State alone possesses, and which the State must exercise both directly and through local officers to whom the authority is delegated. This is the present trouble, educationally, in Massachusetts. Through pride in traditions, to continue what under present circumstances has come to be a mere sentiment, and a dangerous one at that, her people are delaying the proper organization of their public school system, both generally and locally. It is much to be hoped that they will not be content to occupy a back seat in the chariot of progress and cry " Whoa " until the troublesome elements in their midst gain absolute control of the team and full possession of the road, only because they may dislike the color of one of the horses. They probably will not, for in spite of all my friend has said, it is beginning to be known that the thoughtful people of his State are meditating, and that some of them are intent upon action.

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Since writing so much of this paper I have received a letter from Mr. William B. Shaw of the New York State Library, whom Mr. Martin quotes in support of his claims, objecting to such use of his writings. Mr. Shaw says: "There is not a sentence in my papers asserting or implying that common schools were started in Massachusetts sooner than in New York. What I said about Massachusetts has no bearing on the issue between yourself and Mr. Martin."

It also transpires that at the meeting of Massachusetts State Teachers' Association held at Springfield, November 25 last, resolutions were adopted, as reported in the *Union* of that city, favoring the very movements toward the perfection of the public school work which we have been discussing, and which Mr. Martin has insisted were already compulsory in his State. It also appears that bills to this effect are now pending before the Massachusetts Legislature, and State Superintendent Dickenson is telling the Legislative Committees that if Massachusetts hopes to keep up, or get up, with the educational work of other States these measures must be adopted, and then telling the National Department of Superintendence that he is praying that the Legislature will have the *courage* to pass them.

Massachusetts seems likely to get on firm ground touching her public school work in about the same time, relatively, that she required to get on the right ground touching religious toleration, and to write the pledge of religious liberty in her constitution.

In the meantime it is submitted to any open-minded reader that I have established my proposition that "*America is indebted to the Dutch rather than the English for the essential principles of the great free-school system of the country, and that in the several most important steps which have marked the establishment and development of that system, New York, and not Massachusetts, has led the way,*" and in the meantime, also, my admiration has grown for that quality in the Massachusetts men which enables them to make so much out of so little by the use of artistic dressing.

ANDREW S. DRAPER

SUPERINTENDENT OF INSTRUCTION,
CLEVELAND, O.

V

INTERNATIONAL STUDENT ASSOCIATIONS

One marked characteristic of the present age is association. In the department of labor there are associations and unions of all kinds, while in the field of charity the "Associated Charities" represent the best economic and scientific efforts. In the student world the Greek letter fraternities prove what charm there is in the union of kindred spirits, and their annual conventions illustrate the ease with which the representatives from fifty to sixty colleges in all parts of the nation deliberate for the best interests of their society. The most recent phase of associated effort in the student world was the gathering at Ann Arbor of representatives from the colleges, assembled for the purpose of furthering the interests of the Republican party.

In 1891 the General Association of Students at Paris appointed a Committee of Reception. It was the object of this committee to receive men from abroad, and help them in every possible way in establishing themselves in their academic home. In many of the American colleges, this kind of help to new students has been extended by the Young Men's Christian Associations. It was the wish of the Paris association that similar committees of reception should be organized in all of the leading universities of the world, and that such scope should be given to the work as to justify the name international. In response to such a suggestion sent to the Johns Hopkins University, the initial impulse to what was afterward the *Graduate Students' Association* was given by the department of History and Politics. Delegates from all the departments of the university organized and formulated an association based on three lines of activity, international, national, and local. Under the first head, students were to be commended to foreign universities, and those coming from abroad were to be received and welcomed. A bureau for information concerning foreign universities was to be established. As a part of the national functions, affiliation was to be sought with the various colleges and universities, so that the association could be informed about their methods. The local features were, of course, adapted to the existing circumstances at the Hopkins. The association was to co-operate with the faculty in the reception of distinguished visitors; it was to be a medium of information between the faculty and the students; advantages in trade were to be secured, and a bureau of university extension was to be opened.

Each department in the university was to choose one member, and this committee was to elect its president. Full power was given to this organization for resolution into subcommittees for the performance of all the functions of the work. Such, in brief, were the organization and the objects of the association in Baltimore.

In 1883, at the three hundredth anniversary of the University of Edinburgh, a committee was chosen from the students to represent them and also to aid in planning for the celebration. In 1884 the "Students' Representative Council" was elected. Its scope will be evident from the statement of its aims: "(1) to represent the students in matters affecting their interests; (2) to afford a recognized means of communication between the students and the university authorities; (3) to provide social life and academic unity among the students." This council is now elected annually from the students of the various faculties, and from those student societies which have twenty-five matriculates on their roll of members. There are such councils in the four Scottish universities, and each council elects delegates to a committee which deliberates on questions affecting the interests of the four universities. This committee also charges itself with the care of international relations. Its efforts are more than suggestive, because it has the co-operation of one formed for this very purpose from the university senatus. The council publishes a magazine called the *Student*. It is similar to the student publications in our colleges. The council is representative, as the numbers will show: 3 from the faculty of Divinity; 9 from that of Law; 40 from that of Medicine; 20 from that of Arts; and thirty-three student societies may send from one to three representatives each, based on their list of members.

As a resultant of these movements for and among the students, there have arisen some very interesting developments. One of them is the *Edinburgh University Union.* The fraternity chapter houses in our colleges correspond to this, but on a smaller scale, because the Union has a membership of nearly seven hundred matriculated students. This society has a building costing $90,000, and is furnished with all the appliances of what might be termed a student clubhouse. The house is open each day except Sunday from 8.30 A. M. till 11 P. M.; on Sundays from 2 P. M. till 9 P. M. Members have the privilege of introducing guests to the Union, under certain limitations. The debating hall is used during the day as a news and conversation room. The usual restrictions govern the dining room. Billiard rooms, and rooms for draughts, chess, and cards, afford diversion, while the library may be used for study and writing purposes. A well-equipped gymnasium completes the material advantages of the Union. A similar union exists at the University of Glasgow.

The Students' Representative Council and the Union were excellent, but a still closer confraternity of the students was desired. Accordingly in 1887 Professor Geddes started "University Hall." This was very modest in its beginnings, because experimental, but that stage has been outgrown, and the Hall now has property worth about $80,000. The Hall was an attempt to group the students, so that they might gain the advantages of social life, and abandon the old isolation and independence of lodgings. And yet in the Hall there was to be independence, for the residents were to be self-governing, with no application of the system of proctors or restraint of any kind. In 1891 there were thirty residents on the books, and the mingling of the students of the various faculties and the opportunities for social intercourse have fully justified the wisdom of the foundation. So great has been the success attending these activities that they are being enlarged so as to bring a greater number of students within the sphere of their usefulness.

At the University of Paris the impulse came from the Scotch students, who formed the *Comité Franco-Écossais*, or Scots College. Curiously this revived an old institution at the university dating from the fourteenth century and existing till 1809. This was the union of the Scottish students at the university, but it was expanded into the *Comité du Patronage des Étudiants Étrangers*, whose duty it is to provide in every way for the welfare of the foreign students. In 1891 an international students' dinner was given at Paris, and plans formulated for international organization. The invitation was sent to the Johns Hopkins, resulting in the *Graduate Students' Association*, as described above. One of the resolutions adopted at Paris illustrates the scheme of association in the foreign universities: "In each association of students the foreign students shall be grouped by 'nations.' The object of these groups is: (1) to assure among the students of the same 'nation' regular relations; (2) to make more easy the intercourse between the active and honorary members of the association; (3) to facilitate for the new arrivals all the difficulties which attend their installation in a foreign country." The *Comité du Patronage* is a part of *L'Association Générale*, corresponding to the *Union* at Edinburgh. *L'Association* provides for more than the merely social side of the student life, for it secures special reductions on books, railroad fares, admission to the theaters, and on nearly all things required by students. A building of its own forms the headquarters of the association. The tendency of this feature is to become like that of the University Hall at Edinburgh or our own chapter houses of the Greek letter fraternities. At Lyons and Montpellier such foundations are being planned, and the French Government sent a special delegate to Edinburgh to examine the social organizations among the students.

At Bordeaux the *Association Générale des Étudiants* has been in existence for about eight years and comprises nearly five hundred members. They come from the faculties of Law, Medicine, Sciences, and the Arts. The organization is self-governing and similar to that of Paris. At Bordeaux the association publishes the *Annuaire.* This contains a sketch of the association, its laws, points of information concerning the university, and special advertisements. It is just like the *Students' Handbook* issued by the Young Men's Christian Association, and is put into the hands of the new men. Several pages of the *Annuaire* are devoted to *avantages matériels de l'association.* In the various branches of trade, some one store has been selected, where the members get a special discount; at the association building are the usual advantages of library, reading, billiard, and music rooms, and rooms for special meetings. The students have formed clubs for declamation, music, fencing, riding, dancing, and cycling. The expenses in each case have been made as low as possible. The members of the faculty of medicine, who are of the association, have placed their services gratuitously at the disposition of the students who have joined. On presentation of their membership cards the students are admitted to some of the theaters at reduced rates. The association also gives receptions at its building. It will thus be seen how every exertion is made so that the life of the student, apart from his distinctively academic duties, may be made as pleasant as possible.

At Montpellier the work is very carefully organized, and the various activities of the movement are well co-ordinated. For the summer semester of 1891–92 a list of foreign students was issued, giving their addresses and the faculties to which they belonged. The Bulgarians and Egyptians were in the majority, while there were students from Spain, Turkey, Holland, Sweden, Australia, Ireland, South America, Switzerland, Costa Rica, England, and Russia. About twenty per cent. of the students came from foreign countries. Special bulletins are posted, containing information for the foreign students, and offering the aid of the secretary of the association. He is especially desirous to meet all the new men, and appoints two days when, in the morning, he will receive "the students, their families, and in general any persons who may be interested in them." In case a student is ill the secretary wishes to be informed at once so that he may be able to render him what help may be necessary.

To use the language of one of the bulletins: "The committee is equally happy to lend its aid to all the students, to the professors, to their families, and to all persons whom the intellectual interests of Montpellier attract to that city." By this means the university not only cares for its own students, but comes in touch with the town. In a letter the secretary of the association, Professor Ch. Flahault, says: "The foreign students are always numerous at our university; it has seemed to us necessary to surround them with especial care. A foreigner who arrives in a new country experiences difficulty in establishing himself for his work. The committee obviates this difficulty for him, as well as other matters connected with his location; it assures to the sick medical care, etc., etc. We can congratulate ourselves that, through the efforts of our committee, the strangers who come to Montpellier are at once placed in the most favorable situation. We have also correspondents with those from abroad who give to those interested information concerning our university, and put them in relation with us before the students have left their own country. Professor Minton Warren of Johns Hopkins University has consented to be our correspondent in America."

The Scots College at Paris has relations with many of the German universities—with Ghent, Liége, and Louvain, in Belgium; Lausanne and Geneva, in Switzerland; and all the French universities, on account of the friendly attitude of the Department of Education.

In Vienna the Anglo-American Vienna Medical Association was formed for the sake of aiding the English and American students. The association is a bureau of information, the work as yet being very simple. An entrance fee of fifty cents is sufficient to meet the expenses.

From what has been done practical results have been gained, and great expectations are entertained for the future. The possibilities of such international unions have already been realized by the college branch of the Young Men's Christian Association, for not only are the associations in the American colleges and universities banded together, but also those in all parts of the world, so that the movement is indeed international. Of course this latter work is along distinctively religious lines, but for the spread of such a movement in American colleges as that described above, the way would be prepared to a great degree by what the Young Men's Christian Association has accomplished, because the work of the two organizations would in many cases be duplicated. As referred to before, the *Annuaire* of Bordeaux, and the *Handbook* of the Young Men's Christian Association, illustrate this latter point. There is no reason why in New York an organization like that of *L'Association Générale* of the University of Paris should not be effected. The student world of that city numbers about seven thousand, drawn from the colleges, the schools of law, medicine, theology, art, and manual training. Consider the number of students going from this city abroad to study, and those coming from the other side. If these, before leaving, could get definite information of their new and untried academic home, and could be commended to student organizations that would aid them as at Montpellier, the benefit would be very great.

The Greek letter fraternities have their permanent alumni organizations in New York, and reach their own *coterie* of members, and the "Students' Movement," with its clubhouse, is appealing to the religious and social sentiments of the student world; but an organization in touch with the great centers of academic life in the old world, and gathering in the students from New York, would be a powerful influence in the community, and would be a university club truly cosmopolitan.

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VI

EDUCATION IN FOREIGN PERIODICALS

Life of Otto Salomon

J. S. THORNTON IN THE (LONDON) EDUCATIONAL TIMES

"Otto Salomon was born at Gothenburg, November 1, 1849, of Jewish parents. His early education was received in preparatory schools, whence he proceeded, for a few years, to the Realgymnasium in Gothenburg. After passing the *Student-Examen* in 1868, he entered the Technical Institute in Stockholm; but left in the following term to help his uncle, August Abrahamson—recently left a widower—in the management of his estate at Nääs, about twenty miles from Gothenburg. In order to qualify himself for these duties he attended the Agricultural Institute at Ultuna, near Upsala, in 1870–71.

"His duties at Nääs did not take up all his time, for he spent two or three hours a day in helping the parish schoolmaster, who, however, was not pleased with 'the spy whom the school committee had sent him.' He also started an evening school for farm servants, and (in conjunction with a young lady helper) a Sunday school for a hundred children of the parish. In 1878 he was married to Ellen Wahren, the daughter of a woolen manufacturer at Norrköping.

"The Sloyd movement in Sweden had begun in the late sixties and early seventies. It was, at first, of economical rather than educational significance, *i. e.*, was a movement for home industries, which, it was soon seen, must begin in the school if they were to have any lasting effect. Sloyd schools were started in different neighborhoods by private individuals, some of them close at hand in the *län* or province of Elfsborg, where Count Sparre, the chief of the province, had formed a Sloyd Union. Struck by the new movement, Herr Abrahamson, in February, 1872, opened a work-school for boys at Nääs, and, two years later, a similar one for girls, with his nephew for Director. Special importance was attached to modern subjects, like mathematics, drawing, and physiography; and seven hours out of ten were given to some kind of Sloyd—wood-sloyd, turnery, chip-carving, or saddlery—the corresponding subjects for girls being weaving, sewing, and cookery. In 1886 a mixed school took the place of the two schools; but in 1888 the work of training teachers was growing so fast that the school had to be dropped altogether.

"In 1877 Herr Salomon became Inspector of Sloyd Schools for the middle district of Elfsborg *län*, a post which he has lately resigned.

"To meet the demand for Sloyd teachers, the Director, in 1874, opened a training department in connection with his school, this being the first attempt of the kind. His earlier work in this direction must be discriminated from his later. The earlier was an attempt to turn intelligent artisans into schoolmasters; whereas he now seeks his Sloyd teachers, for the most part, from the ranks of the ordinary teachers. The plan for this 1874 attempt is to be found in the *Proceedings* for that year of the Landtbruks-Akademie, in Stockholm, in the paper entitled 'Something about Sloyd and Sloyd Teaching.' The course was to last one year, and to embrace, besides Sloyd, mathematics, natural science, the mother-tongue, drawing, and pedagogy. There were four students the first year. 'The snowflake was the mother of the avalanche.'

"To make home industries general, it was necessary to appeal to the Folk schools for help; and this, by degrees, gave another face to the whole movement. Whether school authorities were for Sloyd or against, both sides agreed that a purely economical movement could not claim the help of the school. If Sloyd, they said, was to find a place in an institution for general education, it could do so only as a means of promoting that general education. The question now began to be looked upon from an educational, rather than an economical, point of view. This appears in the 1874 article, but still more forcibly in a pamphlet in 1876 entitled *Sloyd Schools and Folk Schools*—I. But how it should serve educational aims was not so clear yet. One can see from this pamphlet that the chief aim in Sloyd teaching was to teach 'the children of workingmen to love bodily labor,' and also to give them the capacity to use the hands on which their living would depend.

"Salomon's journey to Finland in the summer of 1877 was of the highest significance for him. His conversations with Cygnæus,[1] whom he met for the first time, and the lively interchange of letters afterward, gave him a firm grip of these two leading ideas: 'The Folk School the foundation of all after-learning,' and 'Sloyd a means of formal, as opposed to material, education.' But he was not satisfied with the way in which these principles were worked out in Finland, where Sloyd had not advanced much beyond the home industries stage, and meant working at the rudiments of trade, with no particular method. So he set to work on his return to supply the deficiency. One thing was already quite clear. The teacher only could make Sloyd educationally useful, and so he strove henceforth to make the Sloyd school and the Folk school one. From 1878, therefore, he began to take ordinary teachers in five-or-six-week holiday courses in Sloyd, beginning first with teachers from his own *län*, and carrying on the work of the seminary on the same plan which he had begun four years before. But in 1882 came a thorough change. The twelvemonth courses for artisans ceased, and the short courses for teachers were extended, first to all Sweden, and then to teachers from abroad. At the same time, too, all other forms of Sloyd were dropped in favor of the one that was found the most useful educationally, viz., Wood Sloyd. The concentration of attention upon this one allowed of a development of it for educational purposes which it can scarcely be said to have received elsewhere. And there can be no doubt, too, that it is this concentration which has been a powerful help in securing the introduction of Sloyd into the seventeen hundred schools in which it is now taught in Sweden.

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[1] The fullest account of Cygnæus, in English, is to be found in the *Journal of Education* (London) for September, 1890.

"Foreigners have always been welcome at these shorter courses. The first English students came in 1884—two lady teachers under the London School Board. The first English schoolmaster, also a London School Board teacher, made his appearance in 1887, along with eleven ladies, one of whom was Miss Emily Lord. This disproportion between the sexes among English students continued until 1889, after which date men teachers began to realize the importance of the matter. In August, 1890, Englishmen at Nääs were to Englishwomen as six to one, and in 1892 as seven to two.

"In the winter of 1887–88 an important change in the models was made, which must have had the effect of attracting foreigners in still greater numbers. Hitherto there had been only one series of models, consisting in part of objects that could be used in Scandinavian households only. But now three new series were added, and one of these, that for higher boys' schools, might well be called the cosmopolitan series, inasmuch as it consists of objects that may be used in any civilized country. Of the 423 teachers from abroad who have been students at Nääs down to September, 1892, 172 have come from the British Isles, 219 from the continent of Europe, and 32 from Asia, Africa, and various parts of the two Americas.

"The principles of Herr Salomon are set forth in his *Sloyd as a Means of Education* (1884), in his *Teacher's Handbook* (1890), and in the *Theory of Sloyd* (1892). The most important of them are these seven:

"(1) The concentration on one form of Sloyd.

"(2) The making of useful articles, and not of articles of luxury, nor yet of parts of articles, *e. g.*, joints.

"(3) The teaching based on educational principles, and the work methodically arranged.

"(4) The instruction to be given by a trained teacher, not by an artisan.

"(5) Voluntary[2] and individual teaching.

"(6) Positions to be chosen suitable for physical development.

"(7) Drawing and Sloyd to be combined.

"Herr Salomon keeps himself in touch with all the best thought and practice on his own particular subject, and is, therefore, a great traveler and correspondent. The titles of recent books, monographs, and articles on educational handwork are to be found recorded from time to time, with much else, in his *Slöjdundervisningsblad*, a set of which may be seen in the British Museum library. It has appeared regularly each month since 1885.

"Herr Salomon's interests are wider than Sloyd. His lectures show his knowledge of educational literature. He is the editor of a series of educational classics. He has, for instance, arranged translations for his countrymen of Locke's *Thoughts on Education*, Salzmann's *Krebsbüchlein*, Augustine's *De Catechizandis Rudibus*, Pestalozzi's *Leonard und Gertrude*, Comenius's *Didactica Magna*, and Rousseau's *Emile*.

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[2] By voluntary teaching is meant that the child must not be forced to learn, nor any particular teacher obliged to teach, Sloyd. And the grounds on which this conclusion is based have always seemed to the writer of this note to apply with equal force to any other school subject, though the Director has nowhere said so in his lectures. If this is so, the fifth principle says, in effect: Either make your teaching as interesting as ever you can or stop teaching altogether.

" Nääs is a good Sloyd school, and much besides. It is the meeting place of leading teachers of all degrees and all nationalities, for common work and for the interchange of ideas. Professors, inspectors, secondary and elementary teachers, women as well as men—there meet on common ground as comrades. It fulfills, more than any other institution that could easily be named, the ideal we are aiming at in England in the Teachers' Guild. And this is due to the earnest co-operation, for the last twenty years, of three men, each of whom in his own sphere has done his very best. Herr Abrahamson has made a noble use of his wealth in founding the seminary and providing for its continued existence ; as a kindly host, too, he makes his interest and presence felt in all that concerns the common work and the common pleasure. His nephew provides the ideas and the direction ; whilst Alfred Johansson is mainly responsible for the teaching in bench work, which occupies such a large part of the day. But the chief burden falls on Director Salomon. It is he who has to lecture three or four times a day in different languages, who is responsible for the general oversight ; he to whom the mingled brightness and seriousness of the place is due ; and who, in his position as a prominent leader in the movement, is filled with fear lest he may take some step that may be misconstrued, and throw the movement back. It might be thought there was danger in this unvarying success ; but the danger is balanced by his self-criticising temper, by his onward-striving mind, and by his enthusiasm for the cause. ' Rest and be thankful ' is no motto of his. He says : ' Of one thing I am quite sure. The same moment that I find myself unable to make a further advance, to give my cause the fruitage of new ideas, I should think it right at once to retire, and let another take my place.'

" It is out of experiences so varied and so long continued as these that the ' Theory of Sloyd ' has quietly grown. Practice and theory at Nääs go ever hand in hand."

VII

DISCUSSIONS

THE FACULTY OF CRAMMING; ITS PSYCHOLOGICAL ANALYSIS AND PRACTICAL VALUE

In educational circles there is probably nothing that is subjected to more general, uniform, unmitigated condemnation than the practice known by the name of cramming. But, as Shakspere has told us, "There is some soul of goodness in things evil"; and Herbert Spencer has aptly added that there is some soul of truth in things erroneous. It is, therefore, by no means an inappropriate inquiry, whether there is not some soul of goodness even in this evil thing which educationists are so eager to banish from our educational systems; and it may be that the evil of cramming will be most completely suppressed by giving it full rights to the good which it involves.

In order to do this we must, first of all, make ourselves perfectly clear as to what cramming really is. In answering this question it need scarcely be observed that the word *cram*, as applied to a mental process, embodies a coarse, though forcible, figure—a figure so obvious that it must have been adopted in language at an early period.

But this coarse metaphor of cramming does not bring us directly even to those physical processes with which mental processes are most intimately associated—the nervous actions which are their uniform concomitant; and even if it did, it must be admitted that the exact nature of the nervous process connected with the mental process of cramming, is not so much an object of direct observation as an inference from our knowledge of the laws of the nervous system in general. We are therefore compelled to approach the subject from the psychological rather than from the physiological side, and so far as the latter aspect is concerned, we can readily satisfy ourselves that the results of psychological study are, if not confirmed, at least not contradicted, by physiological considerations.

Now, as a mental phenomenon, cramming is a peculiar form of memory. It is not difficult to define its peculiarity. All memory, as pointed out long ago, presents two phases, retention and production. It is the retention of knowledge as a possession of the mind that seems to be most prominently implied in the word *memory*, whereas the readiness with which past acquisitions can be reproduced in consciousness when wanted is more distinctly expressed by *recollection*.

The characteristic of cramming—that which distinguishes it from the more valuable forms of memory—is that it aims merely at the retention of facts for a limited period, and their recollection on a specific occasion. This, in fact, constitutes the most limited sense in which the term is employed to denote the process of preparing for an examination, a use of the word which seems to be comparatively recent.[1] Accordingly, the psychological problem presented by cramming is, to explain how memory is limited in this peculiar way.

Connected with the two phases of memory is a doctrine occasionally met with among older psychologists, that retention is cultivated, mainly or exclusively, by intensity; readiness, by repetition. This doctrine, however, cannot be accepted as an adequate expression of the facts; it must be modified by important qualifications. The truth is that intensity and repetition, like other agencies in mental life, and like the forces of nature in general, are not to be viewed as abstract influences, each working out its results in isolation from others. In all the most important phenomena of memory intensity and repetition co-operate, the value of repetition depending on the intensity with which it is started, while the value of intensity consists in the initial impulse which it gives to repetition.

This fact is illustrated in a thousand ways. Everyone knows, for example, how easily anything can be remembered in which a lively interest is felt, and which therefore strikes the mind with some degree of force. Sir Walter Scott tells a good story in point about an old Border laird, Beattie of Meikledale, who had been complimented for his excellent memory by the parish clergyman. "No, no, doctor," was the honest reply, "I have no command of my memory; it only retains what happens to hit my fancy; and like enough, sir, if you were to preach for a couple of hours on end, I might be unable at the close of the discourse to remember one word of it." Scott introduces this story to illustrate the peculiarity of his own memory. "Though it has rarely failed me," he says, "as to any snatch of verse or trait of character that has once interested my fancy, it has been generally a frail support as to other things."[2]

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[1] It is not noticed in Richardson's *Dictionary* (1838).

It is scarcely necessary, by way of further illustration, to point out the educational value of this fact. Every student is well aware that the acquisition of knowledge, which is not only to be a permanent possession, but to be readily available for service when wanted, requires an intense concentration of the mind on the subject of study; and every teacher knows how hopeless is the task of training pupils to recall anything readily, if he fails to awaken their interest and thereby to arrest their attention.

It appears, then, that for ready recollection it is not merely repetition that is called into play; the effect may be produced by a single impression of unusually powerful intensity.

All this, however, is qualified by the additional fact that the effect of intensity is shown, not so much in the reappearance of the intense impression after a long interval of time, as rather in the persistence with which it continues to be intruded into consciousness, whether welcome or not. Without breaking down the old distinction between retention and recollection, it may be said that the permanent retention of an impression is commonly revealed in consciousness under the suggestion of facts which have been linked with it by some law of association. Consequently, the influence of intensity is comparatively insignificant when divorced from repetition; its significance, as already stated, is to be found in the initial stimulus which it gives to suggestion. And therefore an impression, however intense in its origin, may lose its influence over the mind, and fade irrecoverably from memory, if it is not repeatedly revived.

Here, then, we reach the psychological explanation of cramming, that is, the process by which knowledge is retained for a limited period, and recalled on a specific occasion. First of all, it elevates into prominence the power of intensity, subordinating that of repetition. For intensity, being one of the conditions of suggestiveness and suggestibility, results not only in retention, but in ready recollection. This general description, however, requires more specific exposition.

We must avoid treating intensity as a mere abstraction of

[2] Introduction to *Anne of Geierstein*.

thought. In reality it is always the attribute of a particular mental state, of some feeling that gives its interest to the activity of the moment. In true education it is the perennial interests of life as a whole, that form the impulse to exertion; and the highest education is that which is inspired by motives that view life *sub specie æternitatis.* This fact has formed the general ground of warning against the influence of motives which cannot indeed be altogether eliminated from educational systems, but which unfortunately tend to limit the interest of the pupil in his work to temporary or even to very ephemeral ends. This is inevitably a result of all purely extrinsic rewards, prizes, or even the ordinary ranking in a merit list; and perhaps there is no educational method more perverted than the old pedagogic device of rod and tawse, which narrowed the interest of the pupil to one of the meanest of motives—the dread of physical pain—and stimulated his ingenuity to outwit the pedagogue by essentially deceitful devices of his own. Now, the practice of cramming involves a vice of the same narrowing type. The interest of the crammer, however intense, is expressly limited to a particular occasion; and when that occasion is over, the impulse which its interests created collapses. Of course there is a fact which is not to be forgotten in this connection; and that is that a subject of study may possess many varied interests in itself, and that therefore the cramming of it for a particular occasion may awaken the mind of the crammer to its intrinsic interests, and thus make the subject for him a permanent intellectual property. This, however, is not the essential purpose of the crammer, but merely an incidental result of his work.

This limitation of the crammer's interest in his subject is aggravated by his method of study. His aim is merely to recall what he learns at the appointed moment; and consequently he does not seek to comprehend its larger bearings—to grasp particular truths in their dependence on general principles, and still less in their vaster connection with the universal order of things. He prefers to practice any mnemonic artifice, though it may be based on some very superficial association, if it will only kindle, for one brief moment, a spark of intellectual light to flash upon his consciousness the facts required at the proper time.

With this analysis we are in a position to estimate the practical value of cramming, and thus to indicate its legitimate use as well as to guard against its abuse.

It has a perfectly proper function and therefore a real utility in human life. Every occupation demands a certain acquaintance with facts for purely temporary purposes, and success depends on the mastery of these facts so as to make them readily available for intelligence when required. The profession of law may be taken as a type, though a type which merely illustrates, in a singularly clear instance, what is more or less distinctly implied in other occupations. Every day, both in criminal and in civil procedure, the practice of his profession requires the lawyer to commit to his memory for a brief period facts which are not only destitute of intrinsic importance or interest, but often in themselves so utterly insipid, or even positively distasteful, that it is a relief to be able to sweep the whole rubbish out of the way of his daily thoughts as swiftly as possible. In such cases the faculty of cramming is at once an inestimable advantage and an inestimable convenience—an advantage because it implies the power of rapidly committing to memory, and a convenience because it implies the power of rapidly forgetting.

Occasionally, indeed, in the higher ranks of the profession at least, the lawyer's faculty of cramming finds a nobler quarry to pursue. The questions before a court, especially in civil cases, often involve some acquaintance with those facts of science which are being extensively applied in the industrial operations of the modern world; and the power of mastering these facts rapidly, though merely to use them for the elucidation of the question at issue, gives an immense advantage to the successful crammer. In such cases, however, successful cramming is of course vastly aided by the previous training of the professional man. If his education has familiarized him with the general ideas and methods of science, he will display a facility in mastering the knowledge required for his professional work, while another without the same liberal culture may find himself helpless, except by bestowing on the study of the subject an amount of time that can never be obtained amid the pressure of professional duties. It may be added that sometimes also, especially in criminal cases, the lawyer finds in his professional work a zest essentially similar to the plot interest which absorbs the mind in the evolution of a drama with all its comic or tragic episodes and *dénouement*.

It may thus often happen, as already pointed out, that a person, who is simply cramming facts for a comparatively petty use, may find a larger interest awakened, which may lead to the facts being retained as a permanent part of his intellectual furniture. But, as has also been pointed out already, this result is a mere incident; the essential aim is merely to master the facts for the use of the moment; and, therefore, as will appear presently, it is often marvelous how completely facts mastered in this way may be obliterated from the memory when they have served their purpose.

But from this it follows that, while the faculty of cramming is an acquisition the culture of which should by no means be wholly deprecated, on the other hand its essential nature evinces the serious blunder of giving it undue prominence in an educational system. So far indeed as its just recognition is concerned, it will probably be admitted that no specific provision for its culture is required; the daily necessities of educational methods, however perfect, will incidentally give sufficient opportunities for developing a power of committing to memory merely for the temporary purposes of scholastic work. The danger, therefore, is not that the value of this power will be ignored, but rather that it will receive an unfortunate encouragement. For the education of this power, though it may be accorded a place, can claim at best but a very small place, in the general education of the human mind. It is not in truth to be considered education in the proper sense of the term at all. For real education is always education in some particular subject of study, and implies that the subject studied has been so mastered as to have become a permanent possession of the mind. No man, therefore, can be said to be educated in a subject, who has merely crammed it for the uses of an examination or for any other temporary purpose.

It is not necessary to point out in detail the bearing of all this upon the educational life of the present day. One feature, indeed, will be naturally suggested; that is the prominent position and frequent recurrence of examinations in our educational methods. It is not of course to be supposed that examination can be dispensed with altogether, or that it does not form a legitimate stimulant of intellectual effort. But it is impossible to overlook its dangerous tendency to substitute the temporary cramming of a subject for that permanent mastering which alone is entitled to be called education. Precautions against this tendency may become all the more earnest and intelligent, if an analysis of the real nature of cramming reveals more clearly its futility as an effort to gain that real knowledge at which education aims. If we could conceive cramming to become the habitual process of any man's intellectual life, he would be doomed to stand by the shore of the great ocean of truth, not like Newton to pick up a precious pebble here and there, but to play the hopeless part of the daughters of Danaus by trying to gather its waters in a sieve.

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THE "HARVARD REPORT" ON THE TEACHING OF ENGLISH

The popularly so called *Harvard Report*[1] on the teaching of English did not, it should be remembered, emanate from the college faculty. It is by no means certain that the faculty as a whole approved either the spirit of the report or the means by which the materials for it were procured. It may be confidently assumed that the Harvard teachers of English would have preferred to communicate with the preparatory schools in a manner more consonant with the custom of the ancient university.

School inspection is notably laborious and difficult. In Boston a corps of ten persons barely suffices to find out and report what is going on in the schools. President Eliot uses emphatic language to convey his sense of the difficulty of ascertaining what goes on in a grammar school almost under his own eye. But President Eliot pushed his researches along legitimate lines, noting details and co-ordinating data, aiming to evolve a just presentation of the very complex entity he had undertaken to examine. Apparently it did not occur to him to marshal grammar school pupils, or high school pupils recently promoted from grammar schools, as authorities whose statements would instruct the educational public.

The lithographed facsimiles of students' written accounts of their secondary instruction in English were intended to interest both by their matter and by their manner. Making all due allowance for obvious animus on the part of the young men,—a disposition to fall in with the clearly felt censorious spirit of the whole proceeding,—it remains evident that the teaching of English in the schools where some of the examinees had had their training had not been impressive either by its quantity or by its quality. And the report may have good results for the schools if it tends to lift English to a place of greater importance in the programme of studies and to enable school authorities to overcome ancient prejudices in favor of Greek and Latin as the great staples of preparation for a college course.

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[1] Report of the Committee on Composition and Rhetoric—Messrs. Adams, Godkin, and Quincy—to the Board of Overseers of Harvard College.

But the revelations which the report makes of discreditably bad English written by college students are by no means to be accepted solely as an indictment against the preparatory schools. It is quite incredible that these young men, on this occasion, did their best and showed their training. It is obvious that they were not stimulated by their environment, and by the atmosphere at that moment, to tell pleasing tales of their school days and to hand in papers that should do honor to their old teachers. The lithographic art seems, in some of these cases, to have lent itself to the dissemination of mere extravagances and eccentricities. College authorities usually allow students' freaks to pass unhindered into oblivion. The freak element is discernible in some of these papers, which, therefore, impugn the college discipline rather than the antecedent school training in English.

One who teaches English, though neither in college nor in preparatory school, finds occasion in these unpleasant facsimiles to query whether the young gentlemen whose work is thus put on exhibition had been accustomed, during their connection with the college, to hear the preparatory schools disparaged by their instructors. The symptoms revealed in the lithographs inevitably suggest such a diagnosis. Teachers in all grades are too prone to find fault, in the hearing of their pupils, with the schools from which the pupils came. The disease is common; but it would be gratifying to think of the highest institutions as setting a good example in this respect.

Perhaps the chief lesson for the educational world to draw from the *Harvard Report* is the revelation it makes of the utter weakness of our system of entrance examinations either as a safeguard or as a stimulus. The strangest feature of the case of these young men is that they had been successfully fitted in their schools to pass an examination. The schools had taught English sufficient in quantity and in quality to get their candidates in, and so had every reason to consider their English course sound. Schools that get their boys through the examinations have always been considered to have done their whole duty. Every event, no matter how untoward it may appear in some aspects, that tends to break down the old examination fetich, should be welcomed as being, so far forth, happy in its influence on the schools. Very many colleges have now advanced so far as to examine schools rather than pupils. and to acquaint themselves with the preparatory teachers by direct observation at repeated visits rather than by accounts solicited from boys. If the college knows and trusts the school, and yet, on some occasion, finds lapse of ambition, or any sort of waywardness or caprice in the young men whom the school has sent, it will apply itself to the correction of the trouble in judicious ways, known to wise teachers; but it surely will not promulgate facsimiles of defective work done by the unfortunate young men. Curiosity about school methods is most natural and legitimate in college instructors. The Western college frankly confesses this curiosity, knocks at the schoolroom door, and makes its deliberate inspection. The excellence and wholesomeness of this procedure has at no time appeared more clearly than since the Harvard facsimiles were given to the world.

One danger to be apprehended from the wide publication of this report will be the sudden and inconsiderate adoption of useless books relating to composition and rhetoric, and the increased employment of formal methods that will impose enormous labor without practical results. The prohibitions and the warnings in the rhetorics constitute, it may be, a body of scientific doctrine, but are an inert mass, repressive as an incubus, to young learners. To crowd upon youth more crude rhetoric and more manufacturing of formal, academic themes according to anybody's rules would be to inflict disaster on secondary English teaching.

Should, however, the report prompt a revision of the methods of English teaching, as well as the assignment of more hours to this subject, it may prove to have done great good. The trouble in the schools is not that the English teachers do not work hard enough, but that their work, in consequence of ill-directed method, is largely unfruitful to begin with, and that whatever positive results it might achieve are in great measure rendered nugatory by the other teachers. It needs to be perpetually reiterated that every teacher who neglects pupils' English opposes the English teacher. Every teacher, and especially every teacher of language, has an opportunity to do harm to the pupils' English; and by ancient tradition in our preparatory schools every teacher has been wont to avail himself of his opportunity.

SAMUEL THURBER

GIRLS' HIGH SCHOOL,
BOSTON

ADMISSION TO COLLEGE BY CERTIFICATE

Accredited Schools in California

About a decade ago the faculty of the University of California began to discuss the propriety of accrediting high schools. It was not an invention of their own. The plan had been tried elsewhere, and was known among us as the Michigan plan. There was considerable opposition to its adoption here. It was feared that it would lead to the lowering of the proper standard of admission. If students were really prepared for a college course why should they not show it by satisfactory tests?

The arguments in favor of the plan were such as these: It has been tried elsewhere with good results. No unworthy school need be accredited; the whole matter is in our hands, and we have only to do our duty to secure a high and uniform standard. It lifts a burden from candidates for admission, who have oftentimes an unaccountable dread of entrance examinations. The chief thing is not to get into college, but to stay in. Let there be a wide door for admission, and an always open door for egress. Let the accredited school be judged, to a reasonable extent, by the college work of its graduates. A school diploma is not to be sufficient of itself; we will have in addition the personal recommendation of the principal of the school. With such safeguards there is no danger of lowering the standard.

More important even than these considerations is the opportunity to bring the high schools into closer relations with the university. Accrediting implies examining, counseling, and encouraging. If this is well and faithfully done, teachers will learn what the university asks of them, what other teachers are doing in other schools, what deficiencies are disclosed in their own. They will be ambitious to have their own schools among the best. There will be the great advantage of a uniform standard.

Naturally enough such considerations prevailed, and the accrediting policy was adopted by the faculty. The regents indorsed this action, and on the 4th of March, 1884, made a regulation covering the necessary points. From that time to this the university faculty has proceeded on the lines then laid down, which have been somewhat modified according to the results of experience.

Our system of accrediting seems to us more thorough, more effective, more sure of good results than any other which has been adopted in our American colleges. We are not satisfied with a general impression gained by one or two professors in a brief visit to the school. To every school we send a representative of every leading department of preparatory study: English, mathematics, science, history, classics. The examiner spends considerable time in the class room, and himself tests the pupils' progress. These examinations are repeated yearly, although a department doing very good work, and retaining its teachers, may be accepted another year on the strength of its previous record. As preliminary to the yearly examinations, the school sends us specimen papers showing the style of its work. The school accredited is dependent for its good standing also on the record of its recommended graduates. This may not do justice in all cases to the school, as the new-fledged freshman may "fall from grace" in his studies; but the faculty can easily judge where the trouble lies. These are the chief safeguards of our system—thorough annual examination of the schools, and a careful scrutiny of post-entrance work.

At first only two or three of the largest high schools made application for accrediting. They led the way for others, but there was no rush toward affiliation. Some principals were deterred from applying because of a weak spot in their armor. If they wished accrediting for a given course the preparation for that course might be imperfect at some one point; for example, in the higher English. In a few years the faculty modified the system by allowing exceptions in the accredited courses. If good work was done in all the studies save one, or even two, the school could be accredited for its really deserving work. A further modification bears on the personal recommendations given by the principals. A student can be recommended with exceptions. Every applicant must gain a school diploma, and be individually recommended; but in some less satisfactory study the principal may leave him subject to examination.

With these modifications our system has found increasing favor with the schools. Some of the best private schools have been received on the same footing. These pay the expenses of the examiners' visits; for all public schools, the university defrays the cost. A considerable proportion of the accredited schools have not tried to meet at once all the college courses of the university, the failure to connect being oftenest on the side of Greek for the classical course.

During the past four years, there has been a rapid development of our accrediting system. In 1888 there were but six accredited schools, and but two others preparing their graduates for the university. In 1892 our list included twenty-four public and seven private schools. At least a dozen other high schools are expecting soon to be accredited.

Our gain in numbers is, no doubt, due in part to this closer connection with the schools. There has been a steady growth in these last years, notwithstanding the opening of the new and flourishing Stanford University. But still more marked is the effect of the accrediting system on the schools. Their tone has improved, and their standard has been greatly raised. They have a uniformity of aim which was wanting before. The less advanced schools are stimulated by the example of the more advanced. Our State has the disadvantage of a scattered population, but already the secondary schools are well in touch with each other. Most of them would acknowledge their obligations to the unifying influence of their relations with the university.

Similar relations have been established, informally, with many school centers where high schools are lacking; and this result is closely connected with the accrediting system. Our visiting professors have done much valuable work of an indirect character. Without obtruding advice they have made the acquaintance of teachers, superintendents, boards of education, and school-loving citizens, and have done much to prepare the way for the organization of new high schools. The State Constitution unfortunately made no provision for high schools; it cared for the grammar schools and for the university, but left a chasm between. Recent legislation has encouraged the establishment of high schools, to be organized and supported by local procedure. This legislation is already bearing much good fruit. The university has done its share in promoting this action.

We are well satisfied with our accrediting system. It is somewhat burdensome to the professors, who fill up parts of vacations and odd bits of weeks in making the necessary tours. It is rather expensive for the university to send so large a delegation every year up and down our scattered towns. But we all agree that the labor and the cost are well repaid. As the schools gain in age and stability, the visitors need not go so often to the larger places. But new schools are all the while claiming the same investigation and care which have been bestowed on the older ones. Our accrediting work will not be easy for some decades to come. We cannot trust to written exercises alone, although they are a part of our system. We must see the teachers in their class rooms, and be able to give personal advice and encouragement. We must drop in at places from which no application has come to aid in preparing the way for higher work. We distribute a *High School Circular* explaining our system of accrediting, citing the acts of the legislature relating to high schools, and furnishing specimens of a high school curriculum for a three years' course or a four years' course. Schools wishing to be accredited send us their own schedules of study.

The November number of *School and College* contains an account of a conference of teachers in New England at which the subject was fully discussed. I have nothing to say as to the facts asserted of the accrediting system in certain New England colleges, in New York, and in the Middle West. But if the statements were held to include California, I enter a demurrer. The inspection is not "at set times" (p. 524), with opportunity for the teachers to work up a special display. Our professors are not aware of any undue sympathy (p. 529) warping their judgment of a teacher's work. They are sure that the teachers and pupils of our accredited schools do not "dare to be lazier" (p. 531) on account of the accrediting. I read with astonishment the statement once and again made (pp. 559, 561) that it is unsafe for a principal to refuse recommendations to the children of influential men. I know of no such danger in this young State. President Eliot must have been misreported (p. 564) as saying that in California "each school is visited but once in three years, and at best by but one or two examiners for a day." He was with us less than a year ago, and received very different information, in more than one conversation.

I cannot understand what was said in that conference as to "the educative effect of examinations." It seemed to be taken for granted that where accrediting comes in, all examining must go out. That is certainly a misapprehension. Examinations must still be held for applicants who are not recommended. Our examination papers are just as strict, just as "educative," as they would be if there were no accrediting.

If other institutions have too loose a system of high school affiliation they should be called on to reform their methods. But the rapid and wide adoption of the central idea of the system shows its adaptation to the needs alike of school and college. It is not strange that it has already reached New England. It would not be strange if Harvard, "the mother of us all," should become willing not only to give advice *sub rosa*, but to name openly the schools which fully meet her requirements, and accept their judgment of individual fitness for her college studies.

MARTIN KELLOGG

UNIVERSITY OF CALIFORNIA,
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Girls' Latin School, Boston

Most of the graduates of my school go, in about equal numbers, to four different colleges: Smith College, Wellesley College, Boston University, and the Harvard "Annex." To the first three they are admitted by certificate, and to the last by examination. The examinations for admission to the Harvard "Annex" are the same in all respects as the examinations for admission to Harvard College. As these examinations are held in the heat of summer, and at the close of the year's work, when the pupils are tired and in need of rest, and as, moreover, for physiological reasons, there is serious risk in requiring young women to undergo, at a fixed date, the strain of a severe examination covering a period of three days, I am glad to avail myself of the privilege of sending three-fourths of my pupils to college by certificate. On the other hand, as a natural and efficient means of maintaining a satisfactory standard of attainment and of acquired power as a foundation for collegiate work, I am glad to have the remaining one-fourth admitted to college by examination. The two systems work well together.

The fact that one-fourth of my pupils will seek admission at the Harvard "Annex," where a rigid entrance examination is required, carries with it two important consequences: (1) The school authorities, who have established the Girls' Latin School for the express purpose of affording to girls adequate preparation for collegiate work in institutions of the first rank, have based the school course of study on the requirements for admission to Harvard College, and have instituted a final diploma examination that confroms closely to the Harvard entrance examination as a test of fitness to graduate from the school. (2) As the course of study and the standard fixed for graduation are determined by the requirements of the examination referred to, the colleges which admit my pupils by certificate have precisely the same guarantee of fitness in the case of the students whom they accept that the Harvard "Annex" exacts through its entrance examination. In other words, the certificate system of admission to college is buttressed by the examination system.

This fact, that the examination system is maintained side by side with the certificate system in New England, and that the latter is buttressed by the former, has often been ignored in the discussions which have taken place on the relative merits of the two systems. But so long as Harvard and Yale, —the two oldest and strongest New England colleges—refuse to admit students by certificate, and insist on a rigid entrance examination as a test of qualification for their courses of study, so long will the colleges which admit students by certificate continue to receive the benefit of the examination system, and so long, too, will it be impossible for the presidents of colleges adopting the certificate system to determine by their individual experience to what extent that system, if left unsupported, would lower the standard of collegiate work. I do not question the correctness of what President Gates says in the February number of the REVIEW about the results of the carefully guarded certificate system in operation at Amherst College; I trust, moreover, that there is good reason to believe that there would still continue to be many preparatory schools "capable of doing thoroughly good work," if college entrance examinations were abolished altogether; but I am also of the opinion that, if the entrance examinations were wholly abolished, and admission by certificate were universally substituted in their place, the certificate system would be speedily and completely discredited.

Again, the influence of the college entrance examinations on the methods and aims of the teaching in the secondary schools must not be overlooked. I should be far from admitting that all the suggestions which have resulted in the improvement of secondary instruction have emanated from the colleges and universities. Some of them have, and some of them have not. But whatever the source of the improvements that have been made in the character of the work done in these schools within the last twenty-five years, this much at least is certain: that these improvements have been faithfully reflected in the examinations set for admission to college, and that only when they have been so reflected have they become widely prevalent.

Compare, for example, the entrance examinations set in Latin and geometry twenty-five years ago at Harvard College with those set within the past few years at the same institution. At that time the candidates were tested in Latin by means of passages taken from prescribed works of prescribed authors, which had been carefully read and reviewed in the preparatory school; now they are tested on passages which they have never seen. Then they were called upon to demonstrate theorems which they had learned from a text-book; now they are confronted with original theorems to be demonstrated at sight. A generation ago the entrance examination was largely a test of memory; now it is largely a test of acquired power. Within the same period a corresponding change has taken place in the teaching of the secondary schools; plane geometry, for example, is taught in some schools in this neighborhood entirely without text-book. This change would doubtless have taken place to a considerable extent independently of the questions set at college entrance examinations, for these examinations are not by any means the only educational forces at work among us; but the coercive power of these examinations makes them an especially potent educational force. We may hear at educational conventions or read in educational publications convincing expositions of educational theory, and may afterward put the principles involved into practice or not, according as we are dominated by zeal for reform or by indolent love of ease; but when our pupils are refused admission to college because of our pedagogical inertness so that our professional standing is imperiled, then responsiveness to the progressive spirit of the age is no longer optional, but mandatory.

JOHN TETLOW

GIRLS' LATIN SCHOOL,
BOSTON, MASS.

VIII

REVIEWS

General Method—By CHARLES A. McMURRY, Ph. D. Bloomington, Ill.: Public School Publishing Co., 1893. Price 75 cents.

We have in English plenty of easy books on education that are not scientific, and we have scientific books that are not easy; but we have few that are at once easy and scientific. Perhaps Mr. McMurry's little volume comes as near to this desirable combination as anything before the teacher to-day. The title *General Method*, however, gives one but little idea of the contents of the book. Instead of being a treatise on method merely, it is in reality an introduction of a very simple and concrete kind to the whole Herbartian system of pedagogics. It is, however, a refined and thoroughly anglicized view of that system.

The opening chapter is on the chief aim of education, which is made to consist of the formation of moral character. Yet the conception of the psychology of moral training and of the means to be utilized is quite apart from the current ideas on these subjects. Instead of confining moral education to the inculcation of maxims and the exercise of authority, this book claims that the very subject matter of daily instruction can be made an indispensable factor in such training. Not only is this claim made, but the remainder of the book endeavors to show how the work can actually be done. On page 12 we read, "It will be especially our purpose to show how *school instruction* can be brought into the direct service of character building. This is a point on which most teachers are skeptical." The latter statement is perhaps an exaggeration, since this thought is so novel that we can hardly suppose that the majority of teachers have ever considered it at all.

The second chapter discusses the relative value of studies, and especially their ethical worth. As one might naturally suppose, history, biblical and secular, and literature, being the subjects that deal directly with the actions and motives of men, are declared to have the greatest potency in influencing character. The psychology that demands discipline of mind as something substantially independent of useful knowledge is condemned, and formal culture pronounced a myth. If one may venture to sum up the two views in a maxim, one might say: The old view has for its motto discipline *and* knowledge, while the new declares for discipline *through* knowledge. The difference is an important one. In this chapter is found also an admirable plea for natural science in elementary schools, together with many hints as to how it can be usefully taught.

There is no topic in educational psychology and practice that the Herbartian dwells upon with more enthusiasm than that of direct interest in school study. It is to him the Aladdin's lamp which, well rubbed, will conjure up all the good genii of the child. Thus we read on page 54: "The interest that is awakened in a subject because of its innate attractiveness leaves incentives which may ripen sooner or later into action. The higher kind of interest is direct, intrinsic; not simply receptive, but active and progressive. In knowledge acquired it finds only incentives to further acquisition. It is life-giving, and is prompted by the objects themselves, just as the interest of boys is awakened by deeds of adventure and daring, or by a journey into the woods." One does not miss the traditional sixfold classification common to the Herbartians, which, though a good enough division to make, grows a trifle tiresome when found everywhere.

Chapter IV is perhaps the most interesting one in the book, for it grapples with the most difficult educational problem that Ziller proposed, that, namely, of concentration or co-ordination of studies. He adopted bodily and without reservation the somewhat poetic dictum that the child in his development lives through exactly the same epochs of growth that the race has experienced in its evolution from primitive stages of civilization. This being granted, it follows that the subject matter of instruction should at each advancing step be drawn from the corresponding stage in the culture of the race. Only in this way, thought Ziller, can the child make the surest and most rapid progress in the mastery of the race experience and knowledge. Ziller got along very well with his scheme as long as he confined this principle to religion and history, but he broke down when he came to nature studies, since here the historical path has been from error to truth. The main effort at co-ordination in the latter group is made in trying to associate the studies as closely as possible with the two subjects that yield to the historical treatment. Mr. McMurry's effort here is especially interesting in that he gives his idea of how our American history can be made to conform to the idea of epochs of culture. On page 96 he says: "There is little in our history to appeal to children below the fourth grade, that is, below ten years; but from the beginning of the fourth grade, our American history is rich in moral-educative materials of the best quality and suited to children. We are able to distinguish four principal epochs: 1. The age of pioneers, the ocean navigators like Columbus, Drake, and Magellan, and the explorers of the continent like Smith, Champlain, La Salle, and Fremont. 2. The period of settlements, of colonial history, and of French and Indian wars. 3. The Revolution and life under the articles of confederation till the adoption of the constitution. 4. Self-government under the Union, and the growth and strengthening of the federal idea." Then follows a statement of what pioneer stories may well be taught in the classes. It is hinted that literature will perform a valuable function in this moral-educative training, but nowhere is the topic adequately treated. Indeed, if an American attempts to carry out the Herbartian plan under our conditions, literature is forced to play a very important rôle, since it is the only thing we can put in the place of Bible history, of which the Germans make so much.

Then follow chapters on apperception, induction, and the formal steps of instruction. The last chapter is the most unsatisfactory in the book, being a skeleton on which one can find but little flesh.

When this volume is thoroughly revised, and is published in more presentable form, it will be one of our most useful elementary treatises on education.

CHARLES DE GARMO

SWARTHMORE COLLEGE

Handbook of School-Gymnastics of the Swedish System. With 100 consecutive tables of exercises and an appendix of classified lists of movements.—By Baron NILS POSSE, M. G., Graduate of the Royal Gymnastic Central Institute, Sweden. Boston: Lee & Shepard, 1892, pp. 192.

Physical Education in the Public Schools. An eclectic system of exercises, including the Delsartean principles of execution and expression.—By R. ANNA MORRIS, formerly Supervisor of Physical Culture and Reading, Des Moines, Ia. New York: American Book Company, 1892, pp. 192.

These two recent publications on the subject of physical training are worthy of special notice: first, because both purport to contain systems adapted to public school use; and secondly, because each one illustrates fairly well the way in which a certain so-called "school" of physical training approaches the subject. The *Handbook of Gymnastics* by Baron Posse represents, possibly, the best that the Swedish system has to offer to our elementary schools. It is the work of a teacher who understands better than many of his countrymen American taste and American ideas about the subject. The book by Miss Morris is an attempt to produce a varied, progressive, and practical set of exercises, adapted to all the school grades from the primary upward, according to the eclectic theory. The two books agree in aim, but differ decidedly in method. It is unfair, perhaps, to judge them by the same standard. Compared simply as carefully elaborated and completed systems of physical training in the abstract, one might lose the favor which it would possibly regain when viewed from some other standpoint, such as practicability, utility, results under existing conditions.

There are really two distinct conditions to be met by those who prepare handbooks of gymnastics for the schools of to-day. One is found in the schools of our large cities which favor physical training and can afford the time and money to experiment (as one may say) with it, schools which are able to employ special teachers for the department, or to pay salaries large enough to enable their regular teachers to equip themselves, more or less perfectly, for the work. For such conditions Baron Posse's *Handbook* seems admirably fitted. "It embodies," says its author, "the result of five years' work, and a much longer period of investigation," and is intended to be "a guide for those who are already familiar with the subject, and who can couple their individuality to that of another, and who are teachers, not imitators." I think it to be well fitted to fulfill this mission.

The volume consists really of three parts. The first sixty pages contain an exposition, aided by some dozen or fifteen drawings, of the fundamental principles of the Swedish system of gymnastics. The next one hundred pages are taken up with a like number of tables of exercises, teach table beginning with the simplest movements and progressing "from exercise to exercise in the same lesson, and from the movements of one lesson to those of another," while the last thirty pages contain "classified lists of exercises for teachers who wish to make out their own tables."

In principle the system is an educational system, the aim of which is "to develop the body into a harmonious whole under the perfect control of the will; to improve the functional activity of the body; and to counteract and correct tendencies to abnormal development, especially those resulting from the artificial life of civilization." Some of the fundamental principles are that gymnastic movements "must be executed with full volition in order to produce the utmost effect toward physical development"; that "movements are chosen for physical and physiological effects—local or general; so that only those exercises are used whose effects are needed"; that "exercise should be taken in correct 'doses' with regular intervals, and with a progression from the easy and simple to that which is harder and more complicated."

The author gives some sensible advice to the teacher, and then explains the different positions and movements from which, by an elaborate system of abbreviations which will demand on the part of the uninitiated some considerable work to master, the "progressive tables of exercise" of the second part are taken.

It is hard to understand how anyone who has impartially examined the Swedish system can withhold commendation. Exceptions may be fairly taken to certain principles involved, but this does not alter the fact that here is presented a consistent, coherent, and nicely graduated course of training, the result of much experiment and of much careful and extensive study of physiological principles. It must also be said that it is meeting with marked success in the New England schools, where it is at last receiving a fair trial. There is little doubt that Baron Posse's book will be greatly appreciated by those who are already familiar with the subject.

But there is another and far more common condition to be faced by the enthusiast on physical education in our public schools. It is that of the rank and file, the average schools about the country—schools where there is felt to be but little time or money to invest in anything other than purely intellectual training; schools where there are not now, and cannot be for some time, teachers who are sufficiently well trained to carry out any elaborate educative system of physical culture. There is rarely a lack of generous interest in the subject, but the questions that the teacher here has to answer are, "How can I possibly equip myself for such work? and how can I then find time for it in my schedule?"

The answer to the last question lies outside the province of any handbook, but the first question may at least be partially answered, and such a book as Miss Morris has produced, to my mind, will help much to do this. It has the great merit of being invitingly simple, practical, and, at the same time, sensible and safe. In fact I have seen no book that seems to meet the conditions in most of our schools to-day so well as this. It is plainly the labor of one who knows by a varied and actual experience just what can be successfully accomplished. I do not say that it represents all that can be done, nor the best that can be done. The average school is not, and cannot be, looking for that ideal as yet, but it does meet the demand for some method which is fairly scientific, but not elaborate, safe, progressive, interesting, and predominatingly recreative—some system which shall bear upon the face of it the proof that it is adapted to interest and develop the children in our common schools. It satisfies also another desire for a method of instruction which can be learned without too great an expense of time and money by teachers whose instruction must mainly lie, not in the line of physical, but of intellectual training. To all such teachers. I feel assured, Miss Morris's book will commend itself. It is excellently edited. Its publishers are to be congratulated upon producing an unusually attractive volume both as to typography, paper, binding, and arrangement. The cuts are very satisfactory. All the drawings are not equally good, the inequality showing itself most where it would naturally be expected, in the posture drawings, but with so much to commend one feels little desire to take exceptions to slight blemishes.

But an attractive garb does not lessen the value of the contents of Miss Morris's book. It opens with a brief outline of a graduated course of exercises designed to extend through eight grades of public school instruction, beginning with the primary department and ending in the high school. This is followed by a chapter on general positions and drills, with suggestions to teachers on class exercises, chest expansion, breathing, standing, walking, "harmonic poise," etc. Then comes a description of the relaxing and feather movements of Delsarte, which is followed by some twenty-five pages devoted to the movements of the graded course. These are carefully explained and illustrated. The remainder of the first part of the book is taken up with marching exercises, illustrated studies in Delsarte posturing, and apparatus drills in wands, Indian clubs, rings, dumb-bells, etc., any one of which can be easily learned and put to good use in advanced classes.

Part II, which treats briefly of reading and declamation, seems to me irrelevant, and apart from the purpose of the book; but I would not exclude by this criticism the selections of music excellently adapted to the gymnastic exercises which occupy the body of the volume.

It is difficult to estimate fairly the practical worth of any physical exercises without trial. By this Miss Morris's system must be tested. Its main weaknesses seem to me to lie in the facts that it does not offer a sufficient number of exercises for each grade, and that there is not enough difference between the exertion and strength required to do the movements in the first and last grades to indicate a proper progression in the exercises. This may be partially explained away by the brief time usually allowed in our schools for gymnastics, and also by the chance offered to substitute the other exercises and drills found elsewhere; nevertheless one feels this lack of completeness and progression, and it weakens the book, especially when it is brought into comparison with that of Baron Posse, which is particularly strong in these respects.

However, the perusal of the two books has given me much satisfaction. I can heartily recommend them to all teachers interested in physical education. I believe, though, that for practical use they will be found to give best service when applied to the different sets of conditions with which I have associated them above.

CHARLES H. RAYMOND

LAWRENCEVILLE, N. J.

A New Indexed Atlas of the World—Size 15 x 21 inches, containing 521 pages, of which 182 pages are maps. Chicago and New York: Rand, McNally & Co. Price $30.00.

Rand, McNally & Co. have for many years enjoyed the reputation of being the leading map-makers of America. This new atlas is in reality new, and not simply a revision of their old work.

The maps, in point of beauty and completeness, exhibit the highest achievement of the engraver's art. The volume contains a large-scale map of every country and civil division in the world, and shows every city, town, village, and hamlet, every lake, river, and mountain on the face of the globe. Every map is accompanied by a classified alphabetical index, giving the name of every place, its population, and by means of the marginal references on the map, easily and instantly showing just where on the map it is located.

The historical and descriptive matter tells of the soil, climate, productions, and natural resources of the country, and describe its people, their nationality, their principal characteristics and peculiarities, their educational institutions, religion, etc. The publishers have recognized the fact that geography and history must be studied together.

The statistical matter, illustrated by ingeniously devised colored diagrams, which give life and fascination to the figures and statistics, presents a most valuable feature.

The publishers have evidently spared neither pains nor expense to make this atlas complete and reliable. Such a handbook of information will prove of great advantage to educators in every department of school work, from the country school to the university.

E. H. C.

The Beginner's Greek Book—By JOHN WILLIAMS WHITE, Ph. D. (Harv.), Professor of Greek in Harvard University. Boston: Ginn & Co., 1892, pp. xv, 498.

Professor White's new book differs from his *First Lessons in Greek* in several important respects. It is a work complete in itself, containing all the necessary grammatical forms and principles required for its mastery. Therefore the pupil will not be confused by seeking, in order to learn one lesson, many references in various parts of the grammar, nor will his time be lost by reseeking them for more thorough study and review. The aim of the book is made much more prominent and the steps to that end are taken with much greater care.

In the seventeenth lesson the author says, that to read an inflected language, such as Greek, the knowledge of three things is absolutely necessary: first, that of words; second, that of forms; third, that of constructions. While words, forms, and constructions are of equal importance, and while the logical order accounts for the placing of words first, the importance given to the study of vocabulary in this book distinguishes it from the author's previous work and largely also from other books of the same class. It seems that the result of much of our work in the past has been that forms have been well mastered, constructions fairly so, and the words left largely in the lexicon to be sought and resought as occasion required.

It will be interesting to study in detail the author's plan for the acquisition of a vocabulary. For eleven lessons, beginning with the fifth, there are one hundred and sixty-five words, giving an average of fifteen to a lesson, though some lessons have more than twenty. If these early lessons require generally two recitation hours each, an average of but from eight to ten may be secured. Whether the author has so arranged his exercises that the words at first are frequently repeated and then recalled occasionally when beginning to fade from the mind, the use of the book in the class room alone can prove. No elementary text-book has yet gone too far in care in this direction. The vocabularies of these eleven lessons are placed before the exercises, so that they may be learned first. It seems an unnecessary irregularity that eight words, used and explained in the exercises, should not appear in the special vocabularies, which must be continually used for rapid reviews. The sixteenth lesson contains a list of all the words that have occurred in the previous lessons, affording an opportunity for thorough drill. Here, as an aid to mastering vocabulary, the author explains the grouping of Greek words. From this point to the fifty-third lesson the special vocabulary follows the exercise, and the pupil is not expected to use it, except for after-study, unless the affinity of words and the connection of the context fail to give him the meaning. At intervals these new words are gathered into four other special lists, in which related words are designated. With the fifty-fourth lesson the pupil has a vocabulary of nearly eight hundred and fifty words, three hundred and fifteen of which are marked as related in form and meaning to other given words. As the entire vocabulary of some elementary Greek books is less than this number, when the pupils are expected to read a Greek author it is certain that with this broad foundation the acquisition of a vocabulary ought now to be rapid. To accomplish this there follow two lessons on the formation of words and then in the subsequent lessons forty groups of kindred words, with each group derived from some single root. These groups in some instances seem very large, but the pupil's mastery of the force of the endings, his acquired facility in the learning of vocabularies, and the necessary repetition of words from the earlier lists ought to lighten the work considerably. The study of kindred words in English and Latin is also employed as a help. With this preparation it is not surprising to find that the Greek-English vocabulary at the close of the book contains more than two thousand words. Here, as in the *First Lessons*, still further aids are introduced by marks indicating the relation of many derived words to their neighboring primitives.

The matter of form is presented by paradigms in easy steps, alternating substantive with verb and following the order of declension with the former and mood rather than tense with the latter. By this course of deferring the subjunctive until the indicative has been slowly given in every tense and voice, comparatively few difficulties are presented at the same time. The forms are given with great thoroughness and end with ten pages of verb inflection for review and reference.

While the order of the presentation of form determines largely the order of the growth of vocabulary, it also modifies directly the plan of presenting constructions. The simple and gradual advances in inflection make the advance in syntax easy. The constructions used at first are those common to Greek and English or Latin, while new rules peculiar to the Greek are gained inductively from their use in Greek sentences. The principles of construction found in this way appear only as required by the sentences selected from the Anabasis to illustrate the forms, until the completion of the subject of inflection, when nineteen lessons in alternation with the reading of the Anabasis furnish sentences to serve as a basis for the systematic induction of the rules of syntax.

There appears, scattered through the book, a continuous narrative, entitled "Cyrus," simplified from the first eight chapters of the Anabasis and adapted to the words, forms, and constructions acquired in the previous lessons. This truly forms a gate to the Anabasis, and with the many continuous passages to be rendered into Greek, and with the many exercises founded upon the same text, it makes the reading of the eight chapters of the Anabasis a work of comparative ease.

The author intends this book to furnish work for the first year's study. It contains one hundred and thirty-nine lessons. The school year ought to afford at least thirty-five weeks of school work with five Greek lessons a week, or one hundred and seventy-five lessons. That will allow thirty-six lessons to occupy two lesson periods. This does not seem enough considering the extent of many lessons. It must, however, be remembered that this amount of grammar, vocabulary, and reading has not often been covered during the first year of Greek work. The goal of reading Anabasis readily at sight might be attained at the end of the second year if part of this work were left for the commencement of that year. Perhaps the difficulty of the book might have been lessened without loss in result if the English exercises had been generally reduced one quarter in length and if the whole vocabulary had been somewhat shortened by the omission of a number of the less used words. It is hardly necessary to say that the scholarship of the book is painstaking and accurate, and that the work is almost free from mistakes. The pupil who has mastered it will have in the knowledge of words, forms, and constructions a good start toward the reading of Greek.

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Literary Criticism for Students—Selected from English Essays, and edited, with an Introduction and Notes—By EDWARD T. MCLAUGHLIN, Assistant Professor of English in Yale College. New York: Henry Holt & Co., 1893, pp. xx, 236. Price $1.00.

"In France," says M. Sainte-Beuve, as quoted by Mr. Matthew Arnold, "the first consideration for us is not whether we are amused and pleased by a work of art or mind, nor is it whether we are touched by it. What we seek, above all, to know is whether *we were right* in being amused with it, and in applauding it, and in being moved by it." The object of Mr. McLaughlin's book is to provide the canons by which we may determine whether we are right in approving or disapproving a piece of literary workmanship. This object he attains by selecting from the great critics passages that develop general principles of literary art. Commencing with Sir Philip Sidney he spreads before the reader a rich feast of the best things in English literary criticism taken from Ben Jonson, Dryden, Addison, Swift, Samuel Johnson, Wordsworth, Coleridge, Lamb, De Quincey, Carlyle, Matthew Arnold, Lowell, Ruskin, Richard Holt Hutton, and Pater. These selections are all admirable both in themselves and for the compiler's purpose, with perhaps one exception—Matthew Arnold's "Literary Influence of Academies." All of this, too, is good: but unfortunately Mr. Arnold quotes a sentence from Addison as an illustration of what he considers "perfect in lucidity, measure, and propriety." In this instance the great critic has been caught napping. This very sentence, pronounced "perfect in lucidity, measure, and propriety," Mr. Herbert Spencer, in a note appended to his *Study of Sociology*, shows to be full of the most glaring errors in the use of words.

Mr. McLaughlin's Introduction is worthy of the literature to which it is prefixed. The brief accounts of the various authors are in themselves models of judicious criticism, while the notes, calling attention to significant points and suggesting lines of investigation, will be found equally valuable by the professional student and by the general reader.

W. H. M.

Notes on Recent Pedagogical Literature

PRINCIPLES OF EDUCATION—By MALCOLM MACVICAR, Ph. D., LL. D. Boston: Ginn & Co., 1892, pp. 178. Price 70 cents.

The imposing title of this book is its only claim to notice in the EDUCATIONAL REVIEW. It is a formal and laborious enunciation, in Spinozistic fashion, of commonplaces and truisms. It is just the sort of book that those who do not believe that there are any "principles of education" seize upon with glee, and hold up for the amusement of their fellow-men. To point out in detail the grounds for this unfavorable judgment is probably unnecessary, and it certainly would be ungracious. Almost every page, however, furnishes any evidence that the most exacting could desire. To publish it was a blunder, and to circulate it among those who are earnestly seeking in a scientific spirit the real source of educational principles ought to be made a misdemeanor.

JUSTUS PERTHES' ATLAS ANTIQUUS—Pocket Atlas of the Ancient World—By Dr. ALB. VAN KAMPEN. New York: B. Westermann & Co., 1893. Price 90 cents.

This is a most admirable and convenient publication. The schoolboy may hold it in his hand while reading Xenophon and Homer, Cæsar and Vergil, and trace in detail every geographical movement that is described. This is the only way to study ancient geography. Being provided with an exhaustive index, it will also serve the scholar as a book of reference. The twenty-four maps are almost beyond criticism.

PICTORIAL ATLAS TO HOMER'S ILIAD AND ODYSSEY—By Dr. R. ENGELMANN and W. C. F. ANDERSON, M. A., Professor of classics at Firth College, Sheffield. New York: B. Westermann & Co., 1892.

The same publishers issue this series of thirty-six large plates, with analytical and descriptive letter-press, containing 225 illustrations from works of ancient art. As an aid to the appreciation of Homer and a complete understanding of him, the book is invaluable to the beginner. It is just the kind of book that helps to make classical study education instead of drudgery, an instrument of culture instead of mere grammatical and syntactical drill. The illustrations are all copied from genuine works of ancient art and architecture, and are such as either reproduce scenes described by Homer, throw additional light on the manners and customs of his time, or give further details of the myths he narrates or alludes to.

PROSE PASSAGES FROM THE WORKS OF FRANCIS PARKMAN—Compiled by JOSEPHINE E. HODGDON. Boston: Little, Brown & Co., 1893, pp. 122. Price, 50 cents.

Parkman is eminently worthy of this sort of treatment. Either his mastery of his chosen historical field or his excellence of style entitles him to be classed with "standard authors." These selections are suited for high school classes in history or in literature. They are well chosen and will be a useful complement to the ordinarily brief study of early American history.

THE BUNKER HILL MONUMENT: ADAMS AND JEFFERSON—Two orations by Daniel Webster. Houghton, Mifflin & Co., 1892, pp. 87. Price 15 cents.

This is No. 56 in the Riverside Literature series, which is generally accepted as furnishing incomparably the best reading material for elementary and secondary schools. To add some examples of American oratory to the volumes already issued is a judicious step, and the publishers have shown wisdom in beginning with Lincoln's Gettysburg address and these fine specimens of Webster's power.

THE PLACE OF THE STORY IN EARLY EDUCATION, and other Essays—By SARA E. WILTSE—Boston: Ginn & Co., 1892, pp. 132. Price 50 cents.

The essay that gives this book its title occupies but one-tenth of its pages. The book is a collection of simple and thoughtful essays on kindergarten and elementary school work that will be very helpful to those who read them attentively. They breathe the air of the modern educational spirit, and leave the impression that the writer of the prefatory note is justified in saying that "the writer of this book loves children. . . She is an excellent story-teller to children."

SLOYD AS ADAPTED IN BOSTON—By Gustav Larsson. Privately printed.

When Sloyd was first introduced in the United States by the Industrial Education Association of New York it was rather contemptuously rejected even by many who believed in manual training. From the first, however, there were those who believed that its principles were sound, but that its details needed modification to suit American conditions. Through the generous patronage of Mr. Quincy A. Shaw, whose services to education have been many and far-reaching, a series of experiments have been carried on in Boston that have resulted in a fairly satisfactory result. This is described in the pamphlet before me which also contains plates showing the present series of models.

ANNUAL REPORT OF THE SCHOOL COMMITTEE OF THE CITY OF BOSTON, for 1892, pp. 56. Printed by the city.

No report from any section of the country furnishes such conclusive evidence as this that manual training has become an integral part of the American system of public education. Most of this pamphlet is taken up with describing the progress that Boston has made in this subject and the new Mechanic Arts high school which will be a noteworthy institution in every respect. Italics are used to enforce the statement that the value of manual training as a disciplinary as well as an educational force has not been overestimated. Capital illustrations accompany the report.

N. M. B.

IX

EDITORIAL

The publication in this issue of the EDUCATIONAL REVIEW of Mr. Andrew S. Draper's article on "Public school pioneering in New York and Massachusetts," a final reply to Mr. George H. Martin of Massachusetts, brings to a conclusion their controversy over the origin of common-school education in America. In a paper read before the National Department of Superintendence, at its meeting in Philadelpha in 1891, Mr. Martin claimed, with regard to "compulsory education, compulsory schools, compulsory certification of teachers, compulsory supervision, compulsory taxation, compulsory attendance," that "Massachusetts took each of these steps in advance of the other States—a little in advance of her sister States in New England, far in advance of all the others." Mr. Draper has boldly traversed this statement and sets up the counter proposition, "That America is indebted to the Dutch rather than to the English for the essential principles of the great free-school system of the country, and that in the several most important steps which have marked the establishment and development of that system, New York, and not Massachusetts, has led the way." Upon these clearly defined lines of attack and defense the controversy has been waged, and on both sides it has been conducted with great ability.

In his opening article Mr. Draper paid his opponent a rare compliment when he said: "The facts are with New York. All she needs is the help of Massachusetts men to tell the story." While the delicacy of the compliment remains and is fully merited, Mr. Draper's articles furnish ample refutation of its statement. It must never again be said that the sons of New York are unable to set forth her history in a style worthy of the theme.

Opinions will differ as to the merits of this controversy. Few Massachusetts men will be found to admit that Mr. Martin has not established all his claims. Few New York men will concede that Mr. Draper has not shown these claims to be quite extravagant. There is one point, however, on which the unprejudiced mind that has followed the arguments set forth and the authorities appealed to on both sides, will find all doubts laid to rest: the germ of the common-school system—a system of "schools for the common welfare and the public security, supported by public moneys, managed by public officers, in which all the people have common rights, and which are free from whatever may offend conscience or abridge those rights—" the germ of this system is to be found in the schools established by the early Dutch settlers in New Amsterdam. In the new light that has been thrown by Mr. Draper and Mr. Martin on the origin of our common-school system, the history of education in America must in future be written.

No more important meeting of the Department of Superintendence of the National Educational Association, was ever held than that which concluded its sessions on February 23 at Boston. State and city superintendents representing over thirty States of the Union were in attendance. The subjects discussed covered almost the entire range of public school administration, and called out the best literary and debating powers of the members of the Department. Two things in particular must have struck those who have made a study of the proceedings of this body: the extent to which the younger men among the superintendents took part in the deliberations, and the progress that has been made in the acceptance of doctrines which a few years ago would have met with doubt and question, if not with strenuous opposition. While the older men were present in force, and demonstrated that they have not outlived their reputations, the younger ones came boldly forward to state their views, unawed by the occasional dogmatism of their seniors. The general effect was to show that the superintendents are investigating theories of education, and are, as a rule, fully abreast of the best modern educational thought.

Four years ago, when the theory of manual training was presented to the Department, it was received with coldness, if not with decided antipathy. Since then, however, it has been generally accepted, and in the manual training high school it has secured a permanent abode. How great, indeed, has been the revolution in sentiment on this subject may be imagined in view of the fact that the paper of Superintendent V. G. Curtis of New Haven, outlining a scheme of woodwork for grammar schools, did not, at least on the theoretical side, elicit any adverse criticism. As might be inferred from Mr. Curtis's presentations of the subject, the chief obstacle to the introduction of manual training in grades below the high schools, is one of expense. While the utility of the work is admitted, it is not likely that the introduction will be general until the cost of the outfit required for each pupil is much smaller than that estimated by Mr. Curtis, and until the departmental system of teaching shall have been introduced throughout the grammar grades.

The present progressive tendency of educational thought was again illustrated in the discussion elicited by Superintendent Marble's paper on "The study of English in public schools." The writer took advanced ground in favor of increasing the amount of time devoted to the study of English in elementary schools, to one-fifth of the whole ; of reducing the teaching of technical grammar to a minimum ; of daily practice in oral and written composition ; of requiring pupils to revise and improve their own compositions ; and of utilizing their knowledge of technical grammar for this purpose, instead of rewriting compositions corrected to order by their teachers ; of making every lesson, no matter what the subject, a lesson in language, and of reading and studying good literature as the basis of a knowledge of English. Ten years ago, when the memorizing of technical grammar and the parsing of "cut and dried" sentences were almost the only means employed to teach English, the positions taken by Mr. Marble would have been received with sneers of incredulity : to-day they are greeted as generally accepted pedagogical truth. It is to be feared, however, that the practice in many schools does not yet accord with the accepted ideal of the superintendents.

The discussion of examinations and promotions in elementary schools was somewhat marred by the unavoidable absence of Superintendent Cooper of Galveston, who was announced to read a paper on that subject. The general trend of the thought expressed, however, showed very clearly that the weight of opinion is strongly against the "stated examination," and equally against "daily marking," as a basis upon which to determine promotions. That the "estimate" of the class teacher is the safest ground upon which to promote any pupil, and that of the two evils—too rapid promotion and too slow promotion—the former is much the less, were generally admitted. Equally clear, however, was the declaration that examinations may not be dispensed with; that as "elements in teaching," when they are made tests of developed power and not of mere memory, they are invaluable.

Plans of organization for school purposes in large cities were treated by Superintendent Draper of Cleveland, and the supervision of city schools was discussed by Superintendent Maxwell of Brooklyn. Mr. Draper's paper was remarkable, not less as a succinct and luminous presentation of general facts than as a plea for the centralized system recently adopted in Cleveland. In that city the absolute power to license, to appoint, and to discharge teachers is placed in the hands of the superintendent. In this experiment, which must still be regarded as an experiment, the greatest interest was evinced. Doubtless many who listened to Mr. Draper's arguments longed to possess, even for a few days, the dictatorial authority with which he is invested, in order to rid the schools under their charge of inefficient teachers; and yet the belief was forced upon most, that, for the majority of superintendents, the possession of absolute power would not be a good thing either for themselves or for the schools.

The ideal system of administering a system of public schools, it was felt, has not yet been found; at least it has not been put into practice. This feeling it was that prompted the Department, acting on a suggestion contained in Mr. Maxwell's paper, to undertake the most important work it has ever attempted. This is nothing less than to investigate the city school systems of the country, the prevalent methods of training teachers, and that much-talked-of but little-practiced theory, the co-ordination of studies. The following committee was appointed to conduct the investigation and report at the next meeting of the Department: William H. Maxwell, Brooklyn, chairman; William T. Harris, United States Commissioner of Education; S. M. Balliet, Springfield, Mass.; N. C. Dougherty, Peoria, Ill.; W. B. Powell, Washington, D. C.; H. S. Tarbell, Providence, R. I.; L. N. Jones, Indianapolis; J. M. Greenwood, Kansas City; A. B. Poland of New Jersey; Edward Brooks, Philadelphia; Andrew S. Draper, Cleveland; Edwin P. Seaver, Boston; Albert G. Lane, Chicago; Charles B. Gilbert, St. Paul. An appropriation of $2500 to pay the necessary expenses of the committee is asked from the funds of the National Educational Association. Results of permanent value ought to be expected from its deliberations. The committee is composed of the most prominent men engaged in public school work in this country. The work they are required to perform is of the first importance. The field of operations is familiar to all of them. They will have the support of the enlightened public opinion of the entire country. The time is ripe for action. Prevailing discontent with the results of public school education has prepared the public for the acceptance of a well-developed, moderate scheme of reform that will elevate the schools, insure to parents and pupils their rights, and enable every school officer and teacher to work in the way in which his efforts will produce the best results. It will be the fault of the men who compose this committee if they do not produce a report that will long be memorable.

Superintendent Gilbert of St. Paul read a brilliant paper on the reconstruction of the grammar school course, which was really a plea for the co-ordination of studies. This subject, however, is still in its infancy. The superintendents were evidently not prepared for its discussion, and so one of the problems that is just now pressing for solution failed to receive the attention it deserves.

"The Cambridge Experiment" was described by Superintendent Cogswell of Cambridge and Professor Hart of Harvard. The "experiment," already familiar to readers of the EDUCATIONAL REVIEW, consists of a plan by which each teacher in the grammar grades teaches two divisions, one progressing faster than the other, so that the brighter pupils are enabled to complete a six years' course in four years; while certain new work, notably easy quantitative experiments in physics, is given a place in the curriculum. Considerable doubt was expressed as to the ultimate success of the means adopted of "shortening" the course, on the grounds that too heavy a burden is placed on the teacher, and that the dull pupils are likely to suffer by segregation: while there was nothing but approval of the proposed "enrichment." Indeed, when President Eliot argued in favor of the introduction of algebra, geometry, and languages, as he had done a year before at the Brooklyn meeting of the Department, but slight dissent was expressed. It is evident that the superintendents are gradually coming round to adopt President Eliot's views in substance, if not in detail, and that a reorganization of the grammar school curriculum is now inevitable. Two questions of vital importance should, however, first be settled: how teachers are to be obtained or prepared to teach the new work, and how the various studies are to be properly co-ordinated. Simply to add studies which cannot be properly taught would do more harm than good. If the grammar school course is to be "shortened and enriched," studies new and old must be co-ordinated and made mutually helpful, and such conditions must be established as will permit the teachers to do the work. Some there were who thought that these conditions are to be found in the departmental system of teaching.

United States Commissioner Harris presented a paper exposing the error of those who have tried to prove from prison statistics that the extension of popular education is accompanied by increase of crime. His argument was, in brief, that in seventeen States the small number of illiterates supplies proportionately eight times as many criminals as the large number of the educated. He also showed that crimes against justice, prudence, and thrift had diminished as the opportunities for education were multiplied.

State Superintendent Sabin of Iowa argued in favor of grading rural schools, and State Superintendent Poland of New Jersey described the graded system of rural schools in that State, while Commissioner Harris sought to show that any attempt in country schools to imitate the graded schools of cities could end only in disaster. State Superintendent Waller of Pennsylvania discussed the supervision of country schools; Superintendent Gove of Denver treated of the sources of supply of teachers in city schools, arguing in favor of transferring teachers from one city to another as a preventive against stagnation; Superintendent Balliet of Springfield, Mass., urged his brother superintendents to teach psychology as a means of increasing the efficiency of teachers in actual service; Superintendent Greenwood of Kansas City showed the necessity of eliminating from a city system of schools all non-progressive or retrogressive teachers; and Mr. Hudson Shaw of Oxford told of the work of university extension in England, incidentally eliciting, in the discussion which followed his remarks, the fact that the teachers of the public schools are the mainstay of the corresponding movement in this country.

This very notable meeting was brought to a close by the reading of two papers of great merit: one by Professor Andrews of Bryn Mawr on the value of history for moral culture, the other by President De Garmo of Swarthmore on the value of literature for moral culture. Dr. De Garmo deprecated the attempt to realize moral training in schools by the inculcation of maxims of moral conduct even when enforced by authority. Equally futile, he holds, is the attempt to give moral lessons from "little books on ethical instruction," as tending to a "premature, abnormal self-consciousness on the part of the child." On the other hand, he took the ground that "since all moral ideals are portrayed in literature in such a form as to attract the sympathetic interest of the child toward the good, and to arouse his antipathy to the bad; since literature is also perfectly adapted to all stages and phases of mind from the kindergarten to the university, treating each topic as an ethical whole, employing the most fascinating flights of the imagination, and giving the child the constant opportunity of passing disinterested moral judgments upon all sorts of situations, it is the most perfect of existing instruments for developing a happy, generous, unselfish disposition in children, and for giving them the most true, vivid, and concrete ideals of ethical conduct."

Boston surpassed herself in her hospitality to the visiting superintendents. Reception followed reception so rapidly that the members of the Department found every available minute not devoted to business occupied with some form of social enjoyment. The officers and members of the school committee, the authorities of Harvard University and of the Massachusetts Institute of Technology, and the publishing firms of Boston vied with one another in providing for the comfort and entertainment of their visitors. The authors' reception will always live in the recollection of those who had the good fortune to be present. Every distinguished author resident in Boston was there, but interest centered in Oliver Wendell Holmes, who is still young at eighty-three. His voice may be weaker and his step less elastic than in days gone by, but when he spoke his humor bubbled up as from a perennial spring, while the poem he read, composed within two hours of the meeting, glowed with the warmth of his heart and vibrated with the music of his soul.

The annual report of the State Superintendent of Public Instruction of New York, Mr. James Crooker, shows that the aggregate valuation of school property in the State is $47,064,407. The value of the school property in the cities is $32,281,222, while the value of that outside the cities is $14,783,185. The number of pupils registered in all the schools of the State was 1,073,093, of whom 538,660 were in the cities, and 534,433 in the towns. Mr. Crooker points out that, as the legal school age is from 5 to 21 years, and as the greater number of young persons between 14 and 21 are at work, and not in school, the percentage of absenteeism is apparently much greater than the reality. He recommends that the limit of the school age be placed at 18. The aggregate amount paid during the year 1892 for teachers' salaries in the cities was $7,048,412.82 and in the towns $4,572,653.91, a total of $11,621,066.73—an increase of $608,080.30 over the preceding year. It is an interesting fact that the average weekly salaries of teachers in city schools advanced from $17.89 in 1891 to $18.75 in 1892, while those for country schools advanced from $8.27 to $8.38. The superintendent adds that "in a great majority of the country schools" teachers' salaries are "disgracefully small."

Mr. Crooker takes strong ground in favor of the enactment of a stringent compulsory education law, of the adoption of the "township" in preference to the "district" system for the administration of country schools, and of the establishment of the kindergarten as a part of the public school system. So far he is in line with the best educational thought of the day, and his report is to be commended. But when he indulges in tirades against so-called "higher education," by which he means high schools, he places himself in a fair way to lose the respect of the educators of the State. He forgets the essential fact that education from the kindergarten to the university is a unit, and that he who strikes at one part strikes at the whole. It is impossible to treat seriously an expression of opinion like the following, which simply exposes the writer's ignorance of the meaning of "forces" he professes to interpret: "Who can carefully and thoroughly examine the drift of the educational forces of the present time and not arrive at the conclusion that teaching of the most essential branches—the common English—is sadly neglected because of the multitude of ornamental and less useful subjects that are crowded into nearly every course? What is needed is a curtailing rather than a multiplying of subjects. We need less trigonometry, and more business arithmetic; less botany and French, and more and better penmanship; less popular fads, and more common sense." The teachers of the State when they read sentences like this will feel profoundly grateful that the State superintendent has no authority to mold or change courses of study. They have set out on a march of improvement, as resistless as the incoming of the tide, which the superintendent's feeble outcry is powerless to arrest. When Mr. Crooker assumes the rôle of King Cnut he makes himself supremely ridiculous.

Dr. William T. Harris, though he voted for Grover Cleveland for President in 1888, was appointed United States Commissioner of Education by President Harrison. The work that he has done in that office, in the way of collecting and disseminating information on educational subjects, has been of incalculable advantage to all our educational interests. As possessing perhaps the most philosophic mind ever brought to bear on public school work in this country, as one of the very few public school men in this land who have attained international reputations, Dr. Harris has conferred a prestige on the office that it never possessed before. His work, however, has only commenced. It is to be earnestly hoped that President Cleveland will show his appreciation of that work and his approval of all efforts to elevate the public schools above the sphere of politics, by retaining the commissioner in a position for which he is so admirably fitted.

Ex-President Harrison has been engaged to deliver a course of semi-popular lectures on constitutional law each year, beginning with next autumn, at the Leland Stanford Junior University, California. In these lectures—the information is given on the highest authority—Mr. Harrison purposes to embody his observation of the practical workings of the constitution as he has himself administered it and seen it administered during his extended political and official experience. As yet there is no law school proper affiliated with the university, and so the lectures will be open to all students of the higher departments. As the course will not extend beyond a month or six weeks each year, it is to be hoped that one or more of our Eastern universities will give their students the advantage of coming in contact with a lecturer who is not only a great constitutional lawyer, but a great administrator.

Three great teachers passed away during the past month—William Minto, professor of logic and literature in the University of Aberdeen; Hippolyte Adolphe Taine, formerly a professor in the University of Paris; and Andrew Preston Peabody, professor of Christian morals at Harvard. The first two made important contributions to critical and historical literature, but it is very doubtful whether the influence of either on the student character was at all comparable to that of Dr. Peabody, who was himself a living example of all the virtues.

The article in this issue of the EDUCATIONAL REVIEW by Dr. Tolman on students' associations, calls attention to a serious want in the university life of New York. There ought to be a students' association in the metropolis of America similar to the associations formed by the students of the Scotch and French universities.

The condition of elementary education forms the subject of an interesting article in a recent number of the Bucharest *Indépendance Roumaine.* Of the 547,263 Roumanian children of school age only about 111,000 attend with reasonable regularity. Of 96,000 boys and 14,000 girls examined in 1891 only 1764 of the former and 165 of the latter made a satisfactory showing—less than 2 per cent. In that country only 7 per cent. of the recruits of the contingent of 1889 could read, there being 27,000 illiterates out of 29,000 recruits.

A bill is now pending in the Prussian Landtag to set aside until April 1, 1895, a certain share of the revenues, and to make therefrom after that date an annual appropriation of 3,000,000 marks for the increase of the salaries of the poorly paid teachers of overburdened communities. It is proposed, in addition, to expend, after the same date, a lump sum of 6,000,000 marks for the erection and equipment of schools in such places, and to make an annual appropriation of 1,000,000 marks for the same purposes.

In December, M. Martini, the Minister of Public Instruction, submitted to the Senate of Italy the draft of a bill to secure the prompt and regular payment of the teachers in the elementary schools. The proposed measure makes it obligatory upon the receivers of taxes to pay teachers' wages, notwithstanding any deficiency of public funds, the money to be provided, if necessary, from other sources, and the amount with interest to be repaid from subsequent receipts. The committee to whom the bill was referred have announced their intention to make some important modifications in order to increase its efficacy.

The *Boletin de Enseñanza primaria* of Montevideo furnishes some educational statistics which show that in Uruguay a larger percentage of the population attend school than in any other of the Latin countries of the Western continent. In that country, out of a total population of 706,524, there is an enrollment of 65,621, or 9 per cent. Costa Rica comes next with nearly 8 per cent.; the Argentine Republic has an enrollment of 6½ per cent. Bolivia makes the poorest showing; with 2,300,000 inhabitants, only 12,000 children are in school, about one-half of one per cent. of the total population.

EDUCATIONAL REVIEW

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I

HERBART AND PESTALOZZI COMPARED

The progress of education is in a zigzag line, from extreme to extreme. This appears throughout all history. But were it not that succeeding times profit by the experience of their forerunners, the progress would not be assured. The history of the good and bad incident to one extreme is sufficient to prevent its repetition. The extremes are new ones at least in substantial features, and not a discouraging survival of past issues.

At one time the schools have tended almost exclusively to memory culture, with very little attempt at verification by original research and observation. This was the case with what is called the old education, and if we are to believe the critics this ought to be called the prevailing system of our time also.

But Pestalozzi exploded the theory on which it rests and substituted another. He laid stress on sense-perception, verification, and original research. The practice of our time may not correspond to its theory, but certainly all writers uphold the Pestalozzian doctrine of instruction by object lessons.

But while this reform is progressing toward its extreme, another tendency has begun within a few years, and it promises to force a new departure on our zigzag line. This is the doctrine of Herbart, which holds that it is not so much sense-perception that is wanted in education as apperception—not so much seeing and hearing and handling things, as recognizing them and understanding them.

This doctrine of apperception stands opposite to that of perception, but it is not a return to the standpoint of memory. On the contrary, it is rather a more inclusive doctrine, that combines perception and memory in a higher faculty.

Figuratively speaking, we may truly say that it is what we inwardly digest or assimilate of what we memorize or perceive that nourishes our minds, just as it is literally true that it is not what we eat, but what we digest that nourishes the body. The process of mental digestion and assimilation is called apperception by the recent reformers. It is well enough to have a new technical term when we form an idea that contains many old ideas united in a new concept. This process of mental digestion is partly expressed by each of several words, such as identify, recognize, explain, interpret, comprehend, understand. In fact, to classify the new under some already known species, to subsume a particular under a general, are parts, but not the whole of apperception. It is the adjustment of the new idea to the stock of ideas which already form our intellectual wealth. It is what we sometimes call thinking instead of mere seeing or mere memory. We say: "Teach your pupils to think, and that is better than to acquire information by perception or memory." Here we mean that it is better to apperceive than to perceive or remember.

The interaction between the new idea and our stock of old ideas is the essential thing for education. This interaction, we see, is called apperception, and it is a twofold process. For the new modifies the old and the old the new. The new object adds something however slight to my stored up knowledge of the class to which it belongs. On the other hand, what I bring to it with the wealth of my experience throws light on it or explains it. I see its differences from others of its class, and know it to be only a partial realization of the possibilities that belong to the species. It is perhaps only a partial development in some of its features and an over-development in others. I look for the explanation of these defects and superfluities and learn to know the causes. Thus takes place mental digestion.

Professor Ludwig Noiré[1] has illustrated this operation of apperception wherein we add to a new idea a train or series of remembered ideas, and project beyond it another series of ideas or ideals formed by the imagination. He has taken the object perceived, a piece of bread, and connected with it a train of presuppositions which our apperception at once supplies to it from experience already stored up, thus: grain, rye, flour, dough—Bread. Or, connecting the processes: planting, harvesting, threshing, grinding, kneading, baking—Bread.

What an immense series of ideas a piece of bread calls up to us! By our activity of apperception we think of the materials out of which the bread is made, and of the processes by which they have been produced. Not only the grain, but the lard and the yeast, and perhaps milk and sugar and warm water—each of these has its collateral series of ideas running out sidewise in long series. Then each of the processes, planting, threshing, grinding, etc., has its own series, or rather its manifold of different series of ideas. Bread suggests or calls up the combined result of our perceptions and conceptions that relate to this product. Our experience as preserved is the net result of apperception.

But this is only one-half of the mental apperception of the object, a piece of bread. Professor Noiré makes a diagram with the presuppositions just named placed before the word bread, and follows it with the objects and uses which our apperception associates with the piece of bread to explain its existence. These are, first, the ideas of food, organic tissue, life, etc., and the processes of eating, digesting, nourishing the strength, supplying the heat, etc. Again, each of these ideas, as before, has its several collateral series of ideas.

This example indicates to us the scope and bearing of the new pedagogy as related to the course of study. It will give its attention to the relations of things, and especially to the causal relations—endeavoring to think the object in the totality of its existence. When we see a thing in all its relations we comprehend it. We may apprehend it in one, or a few, of its relations. It brings the new object perceived into connection with all that has been formerly experienced; it is naturally led to undertake new investigations, to verify conjectures and probabilities which previous experience suggests as likely to exist.

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[1] In the *Open Court* (Chicago), No. 137.

Recalling our Aristotle we notice that apperception deals with his famous four kinds of causes. First, the material cause of the bread, namely, there is the flour and yeast and lard and water; also the same in other forms, as grain, hops, fatted swine, etc. Second, there is the efficient cause, the power of energy that operates changes on the material, namely, the planting, harvesting, threshing, grinding, kneading, baking, etc. Third, there is the formal cause or the ideal form which the cause produces at the several stages of operation, namely, flour, dough, bread, etc. Then, lastly, there is the purpose or object, the end and aim, called also "design" and "final cause," and this is described by the words food, nourishment, etc. For the final cause is the motive of the will that moves the whole series.

The essential difference between the final cause and the efficient cause must not be lost out of sight. The efficient cause is a constraining force, an external necessity brought to bear upon some being. But the final cause is a purpose or ideal which has no constraining force, though we call it a motive. Its existence is solely through the mind that thinks it, and it gets realized by an act of free volition. The purpose for which a thing is intended is not yet an existing thing, but only an ideal formed by the mind. To say that a motive constrains the mind is to say that something acts before it exists as a reality.

Apperception includes these two trains of ideas—one directed to the past becoming of the object apperceived, to its material, its formal, and its efficient causes; and the other to its future, to its purpose, and reason for existence.

Right here we catch a glimpse of the significance of the labors of the Herbartian educators of Germany who are busied over what they call "concentric instruction." We see that they are at work on a course of study which is calculated to prepare the process of apperception—get ready the "apperception-stuff." This idea has, of course, been understood and acted on by all who have arranged the course of study so that the lower steps of progress lead to the higher steps, and help to explain them. Concentric instruction selects some theme that can arouse the interest of the pupil, and then builds forward and backward, and on both sides outward the series of ideas that form the totality of relations necessary for comprehensive thinking. If this is done in one instance, say in the study of *Robinson Crusoe*, then the pupil will have formed to some degree the concentric habit of mind, the habit of searching out the manifold relations of an object and of connecting it with all that is known, or, technically expressed, the habit of apperceiving it.

Looking back to Pestalozzi we see that his keyword, sense-perception (*Anschauung*), as the point of departure of all intellectual instruction did not furnish any more than the beginning. One must do more than begin: begin with sense-perception and proceed to a thinking consideration of the object. Do this not only with that narrow sphere of experience that includes what is audible and visible and tangible to any single individual, but also with that infinitely wide realm of experience that the race has accumulated and transmitted to us by means of the printed page. Do not stop with memorizing it, but apperceive it and interpret it all into terms of our own experience; translate the unknown into terms of the known.

Pestalozzi worked much to solve his problem of how to get beyond his beginning with sense-perception. He could say only that the elements of human knowledge are form, number, and language. In this he gives no hint of causality as the essential element in knowledge. Number, form, and language do not furnish any of the series with which effective apperception may be performed. Only accidental resemblance, only quantity and an inventory in words can be reached on Pestalozzi's road. The association of ideas by accidental relations is the characteristic of the simple-minded and empty-headed. The association by causality in its fourfold aspect is the characteristic of the wise man and thinker.

Thinking is not, as many of Pestalozzi's followers suppose, an elevated sort of sense-perception, but it is wholly a reaction against it. The mind sees an object before its senses. It at once discounts its value as a real by seeking to find its cause. It leaves the object as a dead result, and proceeds to trace out its past history, its metamorphoses, and the causes and forces which have produced its present shape. Neither does it content itself with replacing the real object before it by a series of past and gone realities that mark its history, but it seizes the force or energy that has revealed itself in the process and in the dead result before it, and therewith it turns to the future and sees the destiny of the real object.

By apperception we suspend the real objects before our senses between two chains of ideas—the series of past forms and the series of future forms—and thus we comprehend the sense-object.

Apperception is thus a process of emancipation from sense-perception. We reduce the object, here and now present, to its subordinate place in the world series, and thus free ourselves from its insolent assumptions. We prove it to be only one step in a great series, only one form, in a long series of metamorphoses—it takes all the series to reveal the essence or causal energy that produces this one dead result.

We learn that the senses perceive only phenomena or appearances of the essential cause, but we climb by thought or apperception to the vision of the cause or energy face to face.

Finally, it is apperception that gives us any acuteness of perceiving with the senses.

What endowed Asa Gray with the ability to observe plants, or Agassiz with his ability to recognize fishes? It was the acquired power of apperception—the power to re-enforce the present perception by the total experience of a long life spent in studying the causal series of plants and fishes. They could also re-enforce their own vision by the aggregate vision of all the naturalists since Aristotle. Hence it came to be said that Agassiz could recognize and describe the whole fish by one of its scales; that Cuvier could draw the entire skeleton from a single bone; that Gray could write the history of a tree from a single glance at it, caught from a car window.

The Herbartian trend on our zigzag of progress, therefore, helps us to re-enforce sense-perception by the memory, through the use of the causal series of ideas. It therefore combines the two former trends in a higher.

Doubtless there will be new trends on the zigzag of progress to correct the extremes and errors of Herbartianism, but, compared with Pestalozzi's theory of intellectual instruction, or with that other and older theory of memory as the sole intellectual faculty, there can be no doubt that the Herbartians are right.

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II

THE REAL GROUND FOR STATE CONTROL OF SCHOOLS

I write the title of this article as above with deliberate intention, though aware that the chief word in it will probably, to many or most of my readers, seem out of place in the company of its attendants. I wish to emphasize the need and the right of state *control;* the usual American habit of thought on public schools, on the contrary, is preoccupied with an interest in state *support.* Public support of schools, and that, moreover, entire, has become so fixed a habit in our popular consciousness that it may almost be said to make up the whole usual conception of the state's relation to education. To this usual consciousness the only natural thesis would seem to run: "The real ground for state *support* of schools." And even this would savor somewhat of unwelcome novelty; for is not state support of schools a matter of course?—and why should anybody be raising a question as to its ground? or, much more, imply that there is an important distinction to be made between the real ground and apparent or illusory grounds? Is there, or can there be, any ground except the fact that the state *owes* a good education to every child within its domain? And when talk of state *control* begins, what possible reason or right can there be for the state to control education, except such as comes from the state's supporting it, and such as is absolutely dependent on that fact?

I do not mean, to be sure, that the question of state control of schools can be justly discussed apart from that of their state support. The latter question will inevitably blend with the former. We shall find it impossible to complete our exhibit of the real ground for state control, without also determining the real ground for state support. State support as an incidental result of control does not follow with any universal reach or unvarying uniformity; nor does it with any necessary certainty follow at all.

As already noticed, this view, however true and sound it may prove to be, is remote from that which is tacitly assumed, and often openly proclaimed, in our American practice and popular theory. The doctrine commonly current appears to be that the state, quite as strictly as the single private citizen or the artificial corporation, has its right of control limited within its right of ownership, while this is bound by the actual expenditure of personal labor or capital, or both. In short, the control of the state over education is limited to what it supplies and owns. Private schools are utterly beyond it; legislation pertains only to public schools; and public schools are, essentially and primarily, schools wholly supported and entirely owned by the state. At the very least, then, this doctrine rests on the assumption that the land and the capital requisite for the complete administration of schools must be supplied by the state, and thus be disappropriated. And so, whether deliberately or not, this popular philosophy of public education presupposes one great stride, at least, in the application of the central tenet of socialism, the publicizing of all land and all capital.

But this prevalent theory of public education is not content with presupposing the moderate doctrine of socialism; in its free and enthusiastic flights, it cannot stop short of downright communism. Throughout the wide extent of our commonwealths, the crusade for universal free schools, for public union, or graded, schools, has almost invariably been heralded and won with the cry: *The property of the state should educate the children of the state!* As if the state were a vast commune, to which alone all the children and all the property alike belonged *en bloc;* and as if all the property within the domain of the state were to be amalgamated into a common fund for the direct general benefit, to be drawn upon *ad libitum* for each family and each child, in behoof of awarding to each the opportunity of winning the largest possible rewards of life, whether each earned it or not. And because the state thus owns and gives away this enormous capital, and because of this alone, the citizen beneficiary accords to it the common privilege of the capitalist and owner—the privilege of controlling and directing the outlay. In that control and direction, however, let the state, like every other capitalist, beware how it exacts anything from the recipients of its bounty! Let its energies be occupied solely with the effective distribution of the greatest mass of opportunity to the utmost possible number! Let demands for compliance with any high standard of performance by the beneficiaries be known, and branded for what they really are—for infractions upon the rights of the free citizen, the self-directing source of law, whose humble creature and obsequious agent the state forever is, and should forever recognize itself as being!

Such assumed bases for state action, when thus carried to their consistent final form, are exposed in their naked flimsiness, and are seen to be unworthy of the sober and diligent, upon the savings of whose industry, physical or mental, the ceaseless burden of taxation falls; a burden cheerfully borne, if objects promotive of rational self-respect, or consistent with it, are gained or likely to be gained thereby, but unjustifiable and intolerable on any lower ground. Some loftier, broader, and profounder view of the nature of the state, and of our relations to it as private persons, as members of the family, and as participants in the civil or economic order, must be brought to light, before we can rationally accept the doctrine that education is one of its functions, and that it may levy taxes for the support of schools. It is of the essence of the state to incorporate justice; and the vice of every communistic or socialistic theory of its nature is, that under the guise of a professed enlargement of justice, the real heart of justice is violated. Recommending themselves with the cry, borrowed from the humane consciousness rising in Christianity, that "we ought to bear one another's burdens," these theories of the state in reality erase from its operation all genuine and sound reciprocity. They violate one of the profoundest instincts of justice, because they really tend to lay upon the diligent and capable not only their own burdens, but those of the incapable and shiftless besides. That the diligent and capable have, in and through the state, a duty to the incapable and shiftless which it is guilt to neglect, is true enough; but it consists mainly in aiding and, if need be, compelling them to bear their due portion of the common burdens. The state is a union of persons vivified by *manhood*, and dignified with the self-respect that rests upon a self-activity conscious of self-support. Its living germ is sterilized when it is changed from this organization of manly and womanly freedom, into an association for the distribution of alms.

If the state, then, does not *owe* education to the children in it, and if its right to control education is, therefore, not the mere commercial right derived from its furnishing the capital required to pay the debt, the question may pertinently be asked: Has the state any such right of control at all?—and if it has, why?—whence does the right arise?

To this question, the summary answer may be given: The right comes directly from what the state *is*, viewed in connection with what education is; the control is founded on a nature essential to both, and common to the two. But to exhibit the real meaning and the warrant for this, let us now examine, what that essential nature is, common to education and the state which carries with it the control in question.

For our present purpose, the most comprehensive view of the nature of education will be obtained by considering its end or aim. And here let us not be misled into taking that plausible short-cut to our desired conclusion, which seems to be afforded by the statement so often and so readily made, that the object of education is to produce good citizens. Over and over, and in almost every quarter of our country, we hear it said that only with this as its object can the public support and administration of schools be defended. But though good citizenship is certainly embraced in the aim of education, the aim itself needs a larger and more significant statement, and can have it. The real object of education and of citizenship alike, is to make, not merely good citizens, but good men. A true and sound human character is their business: true, as measured against the rational ideal; and sound, as tried in the environment and station where the person has to stand and maintain himself. A thorough discussion of the end of education would therefore repeat the world-old debate upon the true aim of all human action, and demands the settlement of the supreme ethical question: *What is the chief end of man?* The long historic way of philosophy has at length, however, brought us to a more satisfactory answer of that question than we once possessed. Delaying over the time-worn issue between Perfection and Happiness, Altruism and Egoism, Intuition and Experience, Virtue-in-itself and Utilitarianism, long enough to discern the inevitable checkmate that each of these sides can put upon the other, when either is taken for the whole truth, human thought on ethics has at length come upon the solvent view that the sufficing aim of man is to be found only in the realization of his own true nature. In this, Perfection and Happiness, Egoism and Altruism, and all the rest, find alike their recognition and their higher fulfillment. In short, it is in *character* that the solution is found—in that active devotion to reasonableness, from personal insight and intelligent conviction, which is at once true freedom (and therefore inexhaustible happiness) and genuine benevolence (and consequently unswerving duty). This character may therefore be best expressed as RATIONAL FREEDOM, and the realization of this Rational Freedom in every child consequently becomes the final goal of all sound education; each is to be developed into a self-directing rational intelligence. And the essential, the all-enveloping light of such an intelligence, is that it knows itself as a member of an indissoluble society of such intelligences, every one of whom is, with equal certainty, an end, and never merely a means, of the others. Rational Freedom is thus seen to be the real meaning and being of life in the moral order; it is the perception of the sacredness of *persons;* its realization in each person is the absolute security of all the rest, as well as the security of himself. Hence it is at once the vindication of rights and the insurance of duties, and thus covers the entire scope of morality.

But where, in the actual world, is the just measure of this Rational Freedom to be found? How is it to be raised from the empty unreality of a vague ideal in the general imagination, or from the more fatal worthlessness of private whims and caprices, into the substantive power of public practice, approved by an historic consensus of ages? The great problem here is the genuine union of Freedom and Reason—how private judgment can safely be intrusted with the public welfare; how a public judgment can prevail, and yet private judgment be neither destroyed nor constrained; how the originating energy of judgment shall be personal and private, as from its nature it must be, and yet its effective result, its character and compass, be public and universal.

And precisely here it is that an adequate view of the nature of the state and of its consequent functions becomes all-important, and, if reached, furnishes the solution of this puzzle; while at the same time it explains the necessary right of the state to legislate for schools. Yet its right to such legislation rests on the same plain ground as its right to legislate upon the other actions of its subjects. As in regard to their actions in general, this is confessedly not derived from furnishing them support, but is original and intrinsic, so in regard to their actions in the matter of education, it is likewise independent of the question of support—is underived and intrinsic. The state, in so far as it is effectively existent, is simply the organized summary of the Rational Freedom that has been historically realized. It is so much ideal humanity, so much universal reasonableness, *instituted;* that is, set steadfastly into the world of sense, planted securely on the foundation of Nature itself, incorporate with the powers of Nature, which it has subdued and reorganized under its own moral order.

We thus come in clear and easy sight of the interior *rapport* which exists between the nature of the state and the nature of education; which must therefore be maintained, and not only maintained, but nourished and developed. The essence of education, as displayed in its only comprehensive and wholly justifiable aim, is Rational Freedom in each of its subjects; the essence of the state is also Rational Freedom, to a certain extent realized and intrenched in that very sense-world whose natural antagonism to reasonable law gives occasion to that "rise" of the state which we are so prone to mistake for its origin—that is, for its justifyng cause. With that "rise," indeed, external circumstances give also the field for the indefinite career of the state, in which it is to advance to larger and larger victory, to solider and solider self-institution. But the indispensable and securest condition of maintaining that career is, that there shall be no decline in the total of realized Rational Freedom, either in its level or in its extent; in short, the state, which is the living causative repository of this realized reason, and the sole adult and competent judge of its present and its future, must itself insure, by legislation thoroughly executed, the character of the ever-coming new generation. The opportunity afforded by what Mr. John Fiske has so happily and emphatically brought to the world's attention under the title of the Rise and Lengthening of Infancy, must be improved and directed by the state. More exactly speaking, the state must see to it that the parental office to educate the child is so guided that the state itself, and therewith the child's mature humanity, shall not only suffer no harm, but be secured in a larger fulfillment of its nature.

The state *must*, because the state alone *can;* the state has the right, because the state is what it *is*—the only measure of public judgment, the only standard of reason actually attained and objectified.

Avoiding, then, the confusion by which the embodiments, the representatives, the agencies, or the mere paraphernalia of the state are mistaken for the state itself, and keeping firmly by the deep view that reveals the state in its true nature as a form-principle of thinking rational life—itself the reality, indeed, of what we commonly call conscience or the recognition of a moral world—we may now revert to our previous conclusion, that the state has in itself the primary and sufficient ground for directing and controlling education. The public reason consolidated in institutions and laws must be brought to bear on the training of the youth who are afterward to constitute the nation and represent the state. In no other way can the state maintain itself, much less advance in its career of larger and larger self-realization. And this right of self-preservation involves no tyranny, because the real life of the nation, the real life of the civil order, the real life of the family, and the real life of the child are all identical.

The argument for state control of schools has thus far been rested on universal grounds, derived from the essence of the state, and valid for it in all times and places, so far as that essence may at any time and place be effectually present. But while the argument holds mainly in this general way, there are the strongest additional reasons for its conclusion, derivable from the state as it has come to be in our days. The rise of constitutional governments, with their carefully guarded Bills of Rights, has effectually provided against the dangers to which autocratic or despotic administrations may have exposed the common life of education and of the state; but by their introduction and continued extension of suffrage, and their steadfast advance toward universal suffrage, they have exposed both to a new and a greater danger. Unconditional suffrage is practically a settled fact for us in the United States; for us, therefore, the safety of the nation, and of all its commonwealths, depends absolutely on the universality, the vigor, and the soundness of education. In proportion as we can make every voter a conscientious judge of men and measures, we may hope to maintain a real nation through the continuance of the real state. In serious default of such a result, universal suffrage must become our ruin. The very life of the modern state depends on the wisdom and efficiency with which it succeeds in controlling and guiding the school.

From all this the conclusion seems plain, that not merely by weight of abstract argument, but also by the authority of intelligent modern governmental practice, the real basis of state control over schools is laid in the very being of the state, in the nature of its general functions, and in the exigencies of its self-maintenance. And the first, the direct inference from this truth is not the state *support* of education, but its state enforcement and direction; the right, nay, the necessity of legislation to induce and to compel education, and to insure wise administration of it. State support of schools, if it follow at all (and I heartily admit that it justly does and will), will follow simply as a condition of efficiency in carrying out administration. So far from its being an axiom of justice that the state should furnish every grade of education free of charge, the sound view is that no grade of it should be given away, except as the emergencies of the situation, the state's own executive necessity, or convenience, require it. The state, too, must of course have regard to the other rational institutions—the Individual, the Family, the Economic Order—which it enfolds and protects, and apart from whose vigorous life it cannot itself live; it must exercise a benignant care over the right of every person, every family, every occupation, and trade, to that precious condition of Rational Freedom, the chance and time to earn a self-support. And while in this care it may judge the course prudent and just, as well as convenient for its own executive needs, to support all grades of schools to such an extent as will secure their highest efficiency, there is another side of its problem—the pre-eminently moral side—which its own nature and the aim of its educational action alike forbid it to ignore: *it must beware of lessening the sense of personal, of family, or of corporate responsibility for self-support and self-production of character.* It must never establish in schools any method that will endanger this vital quality. Nor can it consistently take measures that would compel the parents to submit to one mingled contagion, children of every grade of morality and immorality, coarseness and refinement, uncleanliness and cleanliness, high social development and low.

By the former reasoning it seems to follow that schools universally and entirely free are unsound, or at any rate dangerous schools. It is difficult to see how they can fail to blunt the sense of responsibility and the honest pride in self-support; least of all would they appear compatible with a mere voluntary attendance. Nor does it appear why they should not engender a low esteem of their benefits: what costs nothing soon counts for nothing: and the reason which the state stands for, seems clearly to demand that, so far as at all practicable, every beneficiary of public education should be made to feel its value by himself feeling in an effective degree its cost.

By the latter reasoning, it certainly follows that, beside liberal arrangements in the choice of local public schools, such as shall promote avoidance of too great risks in social contagion, private and select schools, especially for the younger children and for girls, must be authorized and even encouraged by the state. But it follows equally that these should all be subjected to the same conditioning and guiding legislation as the public schools. It is a prime duty of the state to make it certain that every school of a professed kind and grade is substantially equal to every other, be it public or private. Especially in the qualifications of teachers, as well as in the range and distribution of the subjects of instruction, should the state by legislative and executive action aid in securing a grade of excellence as high and as nearly uniform as the development of the age renders practicable. Indeed, in the regulation of attainments, conditioning the practice of all the learned professions, the state has an indispensable duty; and it needs to be acknowledged, to our regret and confusion, that in this duty our American governments, in comparison with those of other leading nations, are still discreditably derelict.

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III

HORACE MANN AND THE REVIVAL OF EDUCATION IN MASSACHUSETTS

Historic events are parts of historic movements, and historic men have built on foundations laid by forgotten workers. This was pre-eminently true of Horace Mann and the educational reforms usually associated with his name.

The first part of this century was marked by a general quickening of interest in education among enlightened thinkers and the friends of humanity the world over.

This interest resulted in an upward movement equally widespread. No classes were outside its influence, and in the grand sweep of its beneficence, in some of its many phases, it had touched and blessed all lands before Horace Mann had begun to think about the Massachusetts schools.

While the movement may be regarded as one—the same *Zeitgeist* stirring simultaneously many minds in many lands—it had two distinct phases; and each of these manifested itself in several different directions. The motive underlying one of these movements was philanthropy, and its object was to widen the sphere of school activities—to reach with the benefits of education neglected classes; the motive underlying the other was philosophy, and its aim was to improve existing institutions by broadening the courses of study, and substituting more rational methods of instruction and discipline.

A rapid survey of what was happening outside of Massachusetts during the first third of the century will prepare us to understand what happened in Massachusetts later.

To this period belongs the infant school movement. Started in 1800 by Robert Owen for the children of his employees at Lanark, fostered by Lord Brougham and other philanthropists, developed in London by Samuel Wilderspin, it spread to all the centers of population. Infant School societies were everywhere organized. Purely charitable in their purpose, they took the children of the poor, between the ages of eighteen months and six years, and amid comfortable and pleasant surroundings furnished them with such elementary training as the parents were too poor and too negligent and too ignorant to supply. With similar purposes, and anticipating some of the methods of the kindergarten, they combined amusement with instruction, and moral with intellectual discipline.

Joseph Lancaster had set up his famous monitorial school in the Borough Road in Southwark, and, gathering a thousand children, had perfected his system of mutual instruction. Filled with enthusiasm, he had become an educational evangelist; had traveled through the United Kindgom lecturing and expounding his new system (which yet was not wholly new) with such success that monitorial schools became everywhere the rage. Within a few years there were fifty-seven of these schools in London alone, and more than a thousand in Ireland. They were in Sweden, in Switzerland, in Russia, in India, and Africa; and in 1825 Lancaster was in the new republic of Colombia, and Simon Bolivar, the Liberator, had appropriated $20,000 to found monitorial schools. While these charitable schemes for the most elementary education were flourishing, a most important movement was in progress at the other end of the line. At Glasgow had been founded a Mechanic Institute, which had been reproduced in all great manufacturing centers. The motto of these societies was a most suggestive one: "To make the man a better mechanic we must make the mechanic a better man." So it aimed by lectures, by evening classes, by libraries, and reading rooms, to give to men of limited opportunities the benefit of a scientific education—to fit the man for the century.

During this eventful period a still more profound movement was in progess on the continent. Rousseau's *Émile*, after being condemned to be burned by the Archbishop and Parliament of Paris, and subjecting its author to banishment, was bearing fruit in the work of Pestalozzi and his disciples. Unlike the schemes of Wilderspin and Lancaster, which magnified devices—devices for organization, devices for instruction—the Pestalozzians were expounding and applying principles—principles which Bacon had announced two hundred years before, but which had found no reception in the schools. At the same time Jacotot was putting into practice in Louvain his methods of teaching languages, and Fellenberg was elaborating his complex Manual Labor School at Hofwyl. The air was full of educational novelties. From all countries philanthropic men and the ambassadors of kings were making pilgrimages to Iverdun and Louvain and Hofwyl. Curious travelers turned aside from viewing picturesque ruins and galleries of old masters, to experience a new sensation in seeing children at school and happy. Verily the word of the prophet was fulfilled, "A little child shall lead them."

The stimulus which these reforms gave to public thought was evidenced in the educational literature which began to be abundant. All phases of education were discussed, and discussed from new view-points, and with a deeper insight into the nature to be educated—domestic education, the education of girls, religious education, the education of the defective classes—the blind and the deaf—and out of it all national systems were evolving, which at a later day determined the fate of nations.

The influence of all this activity was felt on this side the Atlantic, and not one of all the schemes of the revivalists but found its patrons and its imitators here. Infant school societies were to be found in all the cities; Lancaster traveled through the United States, leaving everywhere something of his own enthusiasm, and the monitorial system became universally popular. Not only was it adopted for primary instruction, but for the older pupils in the reading and writing schools of the cities; and, following the lead of New York City, monitorial high schools were established in many places with the more advanced studies of the academies.

Joseph Neef, a coadjutor of Pestalozzi, opened a Pestalozzian school in Philadelphia, and published a descriptive book. In the same city, a disciple of Jacotot founded an institute to apply his principles. The manual labor ideas of Fellenberg found expression in some half dozen States. Still following the lead of the old world, the famous Franklin Mechanics' Institute was founded in Philadelphia, and similar associations began their beneficent work in other cities; educational books multiplied—reprints of European works, and many by native authors.

The publication of Warren Colburn's *Intellectual Arithmetic*, in 1823, was an efficient force in raising the standard of instruction. Previous to this all arithmetic work had been unintelligent ciphering. This book came into the schools as refreshing as a northwest wind, and as stimulating. It was eagerly seized upon by the more intelligent teachers. Its use was a mark of an intelligent teacher, a sign of life from the dead. Embodying the principles of the new education, it wrought a revolution in the teaching of arithmetic, and it determined the character of all subsequent text-books.

All these movements, though having in them the elements of progress, were comparatively local, and limited in the sphere of their influence. A few public-spirited men and women—some teachers—had come out into the light. But the great body of common schools remained unaffected. The great body of Massachusetts citizens was torpid so far as school interests were concerned, or, if aroused at all, awakened only to a spasmodic and momentary excitement over the building of a new chimney to the district schoolhouse, or the adding of a half dollar a month to the wages of the schoolmistress.

Nor was this lethargy of the people and this decay of primitive ardor more marked in New England than in other countries where the spirit of the Reformation had early set up school systems. Scotland, in 1819, awoke to the fact that the parish schools, in which a century before she had led the world, had fallen into decay; had so failed to maintain the standard of popular intelligence which had made the Scotch leaders of thought, that half the people in the Highlands could not read. In Holland, too, the primary schools of the Reformation had become what the Highland chief called "cemeteries of eddication!" The free school system of Massachusetts, under her compulsory laws, had kept her from sinking to the level of the parochial systems of her Calvinistic sisters.

To James G. Carter of Lancaster, Mass., belongs the honor of first attracting public attention to the decadence of the public schools, the extent of it, the cause of it, and the remedy for it. Within a year after he graduated from college he began an aggressive campaign in favor of free schools, which he continued for seventeen years, until his triumph was complete in the establishment of the normal schools, and Horace Mann came to follow up his victory.

His first efforts were through the press. He described the condition of the public schools; he showed how they had sunk in the character of their instruction and instructors; with convincing logic he showed how the academies and private schools were largely responsible for this decline; in eloquent terms he painted the wisdom and self-denial of the founders of the State, and contrasted it with the degeneracy of their children; and with the ardor of his age, and a sagacity and insight beyond his years, he argued for inductive teaching in all the schools, and proved conclusively that there could be no such teaching until competent teachers could be provided. Then, rising to the height of his subject, he outlined a plan for a seminary of teachers, of which Professor Bryce said, in 1828, it was "the first regular publication on the subject of the professional education of teachers which he had heard of."

Mr. Carter's plans for school improvement included two means as of primary importance: a school fund, and a seminary for the training of teachers. The efforts of the friends of reform to secure these two ends were unremitting. The measures were forced upon the attention and consideration of the legislature every year from 1827 until opposition and reluctance yielded to importunity and both were secured. In 1834 a bill was reported and enacted establishing a school fund.

Three years later Mr. Carter's enthusiasm and energy achieved another signal triumph, and the Commonwealth took the second step in its educational renaissance. In his address at the opening of the legislative session in 1837, Governor Edward Everett recommended the creation by law of a Board of Education as an efficient means of furthering the educational interests of the State. In the face of vigorous opposition the measure was carried, and a board of eight members was created, to be appointed by the Governor and council, one member to retire annually, the Governor and lieutenant-governor to be members *ex-officiis.*

This measure was a very mild and inoffensive one. It was evident that the State intended to lay no violent hands upon the people's schools. The new board had some simple duties, but no power. It was to prepare an abstract of the school returns; it was to make an annual report tc the legislature of the condition and efficiency of the common school system, and to suggest means of improving it; only this and nothing more could the board do. Its mission was to influence by enlightening, not to control by authority.

That this influence might be most widespread and potent, the board was authorized to appoint a secretary, who should, in the words of the act, "collect information of the actual condition and efficiency of the common schools and other means of popular education, and diffuse as widely as possible throughout every part of the Commonwealth information of the most approved and successful methods of arranging the studies and conducting the education of the young, to the end that all children in this Commonwealth who depend upon common schools for instruction may have the best education which these schools can be made to impart."

The board was to enlighten the legislature—its secretary was to enlighten the people. Inasmuch as the legislature came from the people, it is evident that whatever efficiency there was to be in the new measure would be the personal efficiency of the secretary; the outcome of the new departure, in direction and distance, would be determined by his wisdom, zeal, and popularity. The possibility of progress was coextensive with the power of the secretary to make himself solid with the people.

At the first meeting of the board, June 29, 1837, Horace Mann was chosen secretary. The choice was a surprise and a disappointment to many of those who had been most active in promoting the new movement. They wanted James G. Carter. It was his voice and pen which for seventeen years had been kindling public sentiment and guiding it toward this consummation. It was his portrayal of the decadence of the common schools, his keen-eyed discernment of the influence of the academies, his eloquent appeals to the sacrifices of the fathers, his sagacious and far-reaching plans for improvement, his skill in legislation which had set the reformation on its feet. He had been the acknowledged leader out of the wilderness into sight of the promised land. It seemed hard that he should not go over and possess it.

If Mr. Mann's qualifications for the position were not peculiar nor pre-eminent, they were neither few nor inferior. Supreme among them was his moral earnestness. In considering any question his mind instinctively turned to its moral aspects; all subjects for him were shadowed by the eternities. In this he was a Puritan of the Puritans. The Puritan spirit was manifest also in his readiness to take the field in defense of principles or in support of measures which he had espoused. He was born to be a champion. Fearless of consequences to himself, he had the stuff that martyrs are made of.

He was broadly humanitarian in his sympathies. He had already shown this in carrying through the legislature almost single-handed the bill to establish the first Asylum and Hospital for the Insane in Massachusetts. He was one of the firmest friends and strongest helpers of Dr. S. G. Howe in carrying on his work among the blind, and he was in the van in the fight with slavery and intemperance.

On the intellectual side his legal training had developed certain natural characteristics; his mind was at once broad and keenly logical. As a result of this no subjects presented themselves to him alone and unrelated; they readily referred themselves to categories, and came under great general principles. From the combination of these two qualities—moral and intellectual—it came about that, whatever cause he espoused, he lifted the discussion at once to the most elevated plane, giving to it a breadth and a dignity which appealed to the thoughtful men and women of the time. This was the secret of his power and of his success. His imagination was active and strong, his idealizing power great, yet there was a practical element in his make-up which kept him from quixotic undertakings; he never mistook sheep for soldiers, nor tilted against windmills.

His writings were characterized by a wealth of language, aptness, and variety of illustration, and an elaboration of argument sometimes bordering close on prolixity and tediousness, but in controversy he could be keen, witty, vigorous, overwhelming. In public speech his arguments were convincing, and his eloquence inspiring.

Besides these qualities of character, his previous life was an added qualification for his new office. He had been for ten years in the Massachusetts Legislature, and during the last two of these he had been president of the senate. This gave him a wide acquaintance among leading men in all parts of the State. He had been one of a commission to prepare the Revised Statutes of 1836. All this gave him a prestige which a mere schoolman could not have had. In politics he was a Whig, in religious faith a Unitarian. These were elements both of strength and of weakness in his new position, as will appear later.

With such endowments, natural and acquired, Mr. Mann accepted the office of Secretary of the Board of Education, June 30, 1837, and on the evening of that day he wrote in his journal, "Henceforth, so long as I hold this office, I dedicate myself to the supremest welfare of mankind upon earth," and for twelve years he held himself to the full level of that vow.

His friends and the public were surprised that he should consent to leave his profession, which might be lucrative, and to withdraw from political life, where preferment was certain, for an office whose salary was meager and whose title conveyed the idea of service, but not of honor. Concerning the title he wrote: "If the title is not sufficiently honorable now, then it is clearly left for me to elevate it; I had rather be creditor than debtor to the title."

Whatever Mr. Mann at the time of his appointment lacked of information, within a few months he knew more than anyone else had ever known about the Massachusetts schools. For diffusing this information, and for arousing and directing public opinion, three means were used: first, conventions and other public meetings; second, the annual reports which the law called for; and third, the *Common School Journal*, a monthly periodical which Mr. Mann established, and conducted for ten years. By these three means he aimed to reach and influence all the parties on whom the success of the schools depended—the public, the school committees, and the teachers.

In annual conventions held in each county, to which teachers, committees, and all friends of education were invited, and to which the towns were requested to send special delegates, Mr. Mann delivered an address in which he discussed, in a broad and general way, great educational topics, treating them with that wealth and felicity of illustration, that elaboration of argument, and that lofty eloquence which characterized his treatment of all great themes.

His first lecture was on the means and objects of common school education, and struck the keynote of all his subsequent labors. While no man had a truer appreciation of the value and need of the higher education, nor exhibited in his own work more of its fruits, yet his accepted mission was to be the apostle of the common schools. In an age of invention he declared, "The common school is the greatest invention of man," and he sought by all the means in his power, on the one hand to increase its efficiency, and on the other to win back to it public confidence and support.

While Mr. Mann in his annual convention lectures treated educational subjects in a more general and discursive way, in less formal meetings he treated of specific evils, and pointed out the remedies. This he did, too, through the medium of his annual reports, which stand to-day unexcelled as educational documents for the range of subjects—general and special; for the treatment—so broad, so philosophical, so wise and so practical, that as we read them in the light of a world full of new educational literature we wonder how a lawyer came to know so much of the theory and practice of education.

In his reports the secretary dealt more directly with facts, and used the returns from the towns as a basis for argument and appeal. The fact which overtopped all others in significance, and which was supremely worthy of interest, because a cause of justifiable alarm, was the non-attendance of children at schools of any kind. It appeared from the returns that more than forty-two thousand children did not attend school at all—or attended so little as not to be counted; while those who were counted attended on the average but seventeen weeks in the year. The money that should have been used to secure a full measure of schooling to all the children, had been diverted to the use of the few to the neglect of the many. The people were paying seven-tenths as much money to educate one-sixth of the children in private schools as they were raising by tax to educate the other five-sixths in public schools.

With this fact and this peril before them, Mr. Mann appealed to the people as patriots, in a convention lecture, on the necessity of education in a republican government. In his Fifth Report he appealed to them as practical business men, by showing the advantages of education over ignorance in promoting the industrial welfare of a community; and in his Eleventh Report he appealed to them as Christians, by showing the common schools to be the most effective instrument to deliver the people from vice and crime.

Not only were the common schools poorly supported and scantily attended, but the schoolhouses were a menace to the health of the children, and a disgrace to the communities which owned them. In his first year of service Mr. Mann prepared a special report on schoolhouses, containing plans and detailed suggestions for proper sites, size, arrangements, furniture, heating, lighting, and ventilating.

The third count in the indictment was the absence of any adequate supervision. The town committees, who were to have the general charge and superintendence of the schools, thereby averting the evils of the district system, in many of the towns had no pay for their services, and rendered no service. In a town of forty districts the committee had not examined a teacher nor visited a school for eight successive years. And the people loved to have it so. Mr. Mann urged the people to greater care in the selection of committees, and to pay them adequately; and he instructed the committees in their duties in visitation, in examination of teachers, and in selection of text-books.

While working thus with the people he was working with no less assiduity and skill to improve the internal economy of the schools, both in matter and method, both in work and in spirit. His Second Report is a most interesting and instructive treatise upon the teaching of reading, including a sweeping and just arraignment of existing school readers, and suggestions for reading matter better adapted to be instruments of instruction in the art of reading, and means of true literary culture. He urges the advantages of teaching words before letters, of written rather than oral spelling. He advocated everywhere objective methods of instruction, the teaching of ideas before words, the use of illustrative apparatus and experiments. He dwelt at length upon school motives and government, and urged the use of moral measures in place of the indiscriminate and universal use and abuse of corporal punishment. He endeavored to broaden the conception of education, and brought more directly before the people than anyone had done before the need of physical and moral as well as intellectual training.

After accepting his office of secretary he had read and absorbed the treatise of the Edgeworths dealing with education on the practical side, and of George Combe on the theoretical side. So he presented to the people and secured a hearing for all the characteristic features of what has come to be known as the new education—its spirit and its methods.

The crowning work of this new era was the establishment of the normal schools. Toward this consummation many men and many influences contributed. The battle had been fought and nearly won before Mr. Mann became an educational leader. Other men labored, and he entered into their labors. But it fell to his lot to be present at the birth, and to watch over the infancy of these schools, and never did feeble nurslings have more sympathetic and more solicitous care. He selected the first principals, made out the first plan of organization and instruction, and they stand for all time inseparably associated with his name and work.

At the close of the year 1848 Mr. Mann gave up his work as secretary, having accepted a seat in congress as the successor of John Quincy Adams. During these twelve years of Mr. Mann's labors the appropriations for public schools had doubled; more than two million dollars had been spent in providing better schoolhouses; the wages of men as teachers had increased sixty-two per cent., of women fifty-one per cent., while the whole number of women employed as teachers had increased fifty-four per cent.; one month had been added to the average length of the school year; the ratio of private school expenditures to those of the public schools had diminished from seventy-five per cent. to thirty-six per cent.; the compensation of school committees had been made compulsory, and their supervision was more general and more constant; three normal schools had been established, and had sent out several hundred teachers, who were making themselves felt in all parts of the State.

All these changes, great as they were in themselves, had their chief significance as indications of a new public spirit. The great work which had been accomplished had been to change the apathy and indifference of the people toward the common schools into appreciation and active interest. This once secured was a guarantee of future progress, and with it nothing would be impossible.

In achieving this result Horace Mann's pre-eminence is indisputable. Much had been done before his time; some men had come out into the light; truth had been preached; converts had been made; far-seeing men had projected far-reaching schemes. But the great body of the people of Massachusetts were as unmoved by all that his predecessors had done as the depths of the ocean are unmoved by the winds that agitate its surface.

Mr. Mann was not an original thinker along educational lines; he read, observed, absorbed, and then gave out. For fifteen hours a day for nearly twelve years, without a day for recreation, he gave himself to the work of convincing and moving the Massachusetts public. He sowed beside all waters.

It is for this reason that popular opinion has come to associate all modern educational reforms with the name of Horace Mann. He is thought to have been the father of normal schools, of high schools, of graded schools, of methods of teaching; the destroyer of the district schools and the academies. By some he is honored as the "Morning Star of the Reformation," by others he is esteemed an iconoclast and a vandal. He was neither; he was a voice crying in the wilderness; and men did hear, and did heed, and did respond. Not readily, nor universally. The story of his labors reads like a chapter in the Acts of the Apostles, so disheartening was the coldness, so varied and persistent the opposition.

Many of the conventions were small and spiritless. This was especially true in the autumn of 1840, when political excitement ran high, and the people—even the best of them—went by the doors of his meetings in throngs to attend Log Cabin and Hard Cider rallies in distant towns. Not that they had anything against Mr. Mann; on the contrary, had he been—as in earlier days—an active participant in these political movements, they would have flocked to hear him. It was this very indifference to the cause which he had espoused which wounded his sensitive spirit; so he writes in his journal, "A miserable, contemptible, deplorable convention"; again, "Politics are the idol which the people have gone after, and the true gods must go without worship. . . If I were not proof against slights, neglect, and mortification I should abandon the cause in despair."

Nor was active opposition wanting. The most serious came from the legislature, the most contemptible from the religious press, the most humiliating to the friends of education from the schoolmasters.

The State election of 1839 was signalized by a political overturn, by which the oft-defeated Democratic candidate for Governor, Marcus Morton, was elected by a majority of one vote, and the Whig ascendency in the legislature was broken. Governor Morton, in his inaugural address, without directly attacking the Board of Education, by innuendo opened the way for his followers in the legislature to a direct assault. He suggested that to those nurseries of pure democracy—the town and district meetings—should be left the control and care of the common schools. A committee on retrenchment, acting on this hint, went out of its way to recommend the abolition of the board, declaring that instead of a State board there should be a Board of Education in every school district, and that that board should be composed of the fathers of the children.

The matter went to the Committee on Education, from which came a majority report recommending the repeal of all legislation establishing the Board of Education and the normal schools, and the refunding to Mr. Dwight of the money contributed by him. The board was assailed in this report rather for what it might do than for what it had done, for its centralizing tendency—a tendency to acquire controlling influence over the school interests of the State. It was charged with trying to Prussianize the schools, and to substitute for the democratic principles of the past the arbitrary methods of European despotisms, with being an ingenious instrument for crushing the liberties of the people. The district libraries approved by the board were a menace to the moral and religious interests of the State, because they contained no sectarian books. The normal schools were unnecessary and useless. The academies and high schools could furnish all the teachers needed, and they cost the State nothing; anyone who had been well instructed could instruct others.

A minority of the committee, consisting of only two members, presented a counter report which showed so clearly the illogical and absurd position of the majority, and defended so ably the Board of Education and its measures, that it secured the approval of the House. The opposition was defeated by the decisive vote of 252 to 182. The period occupied by the discussion was perhaps the most anxious time that the friends of educational progress in Massachusetts had ever experienced. And not in Massachusetts alone; in New York and Connecticut reactionary movements had already been successful, and defeat in Massachusetts would have been a national calamity.

Mr. Mann's pronounced Unitarianism made him, from the first, an object of suspicion to many of the people calling themselves evangelical. The loss of Harvard College to orthodoxy, and the wholesale looting of the old churches which had accompanied the Unitarian schism, led the older denominations to fear that the Board of Education was merely an instrument, contrived under plausible pretexts, to bring the public school interests of the State under Unitarian control, as the college had been brought. They saw in the normal schools, under Mr. Mann's direction, a most insidious means of filling the schools with Unitarian teachers, and in the district libraries—with their claim to be non-sectarian—a device for poisoning at the fountain the minds of the people.

So the denominational papers kept up a running fire of criticism, seconded all the hostile efforts in the legislature, and opened their columns to the most malignant personal attacks. While Mr. Mann hated orthodoxy as much as the orthodox distrusted him, yet the consciousness of sincerity and singleness of purpose in his educational work sustained him through all this annoying experience.

The story of this period of revival would not be complete without a notice of the attitude of the teachers themselves.

Mr. Mann's Seventh Report consisted of a description of European schools as he had seen them in a tour of inspection just completed. This report was made the pretext for an attack upon Mr. Mann by the masters of the Boston grammar schools, thirty-one in number, in a pamphlet of 144 pages.

In this document the masters accused Mr. Mann of ignorance of education in general, and of the Boston schools in particular; of bearing false witness against the schools of Massachusetts, in order to magnify his own work as a reformer; of hasty conclusions from scanty observation. They minimized the value and the work of the normal schools; and then, selecting three subjects—oral instruction, the teaching of reading, and corporal punishment—proceeded at great length to antagonize the views of Mr. Mann. The whole document was a confession of weakness and fear by men who felt the ground slipping from beneath their feet; who were conscious that if the principles and methods advocated by Mr. Mann should obtain general acceptance their own days were numbered; if the world should move in that direction they must be stranded.

Mr. Mann replied to this pamphlet; the masters replied to his reply, and he returned again to the attack, while a guerrilla warfare of pamphlets was waged by partisans of the principal combatants.

This opposition from within the educational ranks can only be explained on the theory of Dr. Harris, that the profession of teaching tends to make men conservative. The necessities of instruction compel the teacher to reverence what is known

—what is fixed—and to be suspicious of the untried. Occupied in restraining the eccentricities and vagaries of childhood, his first instinct is to oppose the new as visionary and fantastic. Charitable as this philosophy is, this opposition of teachers, this wounding of the cause of education in the house of its friends, was most harassing and discouraging to Mr. Mann. Time which he might have spent in furthering the cause or in needed rest and recreation, was used in repelling enemies or in quieting the apprehension of friends.

When we set ourselves to measure the work of Mr. Mann, all this must be taken into account. He fought the battle of educational reform in Massachusetts through to the end, and conquered. Apathetic indifference, hidebound conservatism, niggardly parsimony, sectarian bigotry, and political animosity surged around him, as the enemies of France surged around the white plume of Henry of Navarre, but he left the field so clear that since his day none of these reactionary forces, singly or combined, have made any successful opposition to the on-going movements of the cause of popular education.

To the vigor, the skill, the self-sacrificing ardor, and the conscientious rectitude with which he conducted the offensive and defensive campaigns of his official life, is due the fact that Massachusetts has suffered none of those educational reverses which have befallen most of the other States. The school children of Massachusetts made no mistake when they placed in front of the Capitol of the State a statue of Horace Mann as of their benefactor and their ideal.

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IV

A WORKING BASIS FOR THE CORRELATION OF STUDIES

It is conditions rather than theories that induce men to take up active reforms. Though the logical need of reforming our curriculum of studies has long existed, it is only recently that such a condition of affairs has appeared as to render it imperative. Our programme of studies has become badly congested with subjects representing all sorts of popular demands, social reforms, and esoteric professional interests. Each subject has pushed for further and further recognition, quite independent of the demands of other subjects, or the needs and capacities of the pupils, until the need for elimination of non-essentials and the correlation of essentials has become pressing. As practical manifestation of this necessity, President Eliot's efforts to secure a rational programme for the grammar school led to the appointment of the nine mid-winter conferences on the subjects for the elementary and secondary schools, as follows: viz., on Latin; Greek; English; Other Modern Languages; Mathematics; Physics, Astronomy, and Chemistry; Botany, Zoölogy, and Physiology; History, Civil Government, and Political Economy; Physical Geography, Geology, and Meteorology. At least seven of the given groups have their presuppositions far down in grammar and even primary grades. How, for instance, can we have a good high school course in English, mathematics, history, or geography, whose foundation is not properly laid in the earlier grades? To illustrate this still further, the Madison Conference on History, Civil Government, and Political Economy has no doubt recommended to the grammar school at least three or four years of preliminary work in history. Doubtless similar recommendations have been made by many of the conferences on other subjects. We begin now to see a practical and objective need for correlation quite independent of any psychological reasons. The result of each conference will be, in large measure, a report of specialists, and each will have hovering before it a curriculum in which its own group of subjects shall be the leading idea. It is not unreasonable to expect that each will claim more time than can, in justice to the pupil and other subjects, be granted. The second question for the conferences to answer is as follows: "After a subject is introduced, how many hours a week for how many years should be devoted to it?" It is not improbable that the aggregate number of hours demanded will considerably exceed all there are in the school week, leaving the child no time for play or study during school hours. When one considers the time demanded alone one sees, therefore, that the appointment of a committee on correlation, at the recent superintendents' meeting at Boston, was a necessary step.

Questions 4 and 5—"What topics or parts of the subject may reasonably be covered during the whole course?" and "What topics or parts of the subject may best be reserved for the last four years?"—are, as may be seen, questions as to the selection and sequence of topics for each subject. Now, if there is to be anything more than an external and mechanical adjustment of the various parts of the various subjects, it is evident that there should be some common principle or principles of sequence observed throughout the curriculum.

Broadly speaking, one may follow the logical unfolding of the various subjects considered as finished wholes, as a guide to the sequence of topics, or one may be guided chiefly by psychological considerations, such as appear in the natural interests and capacities of the growing child. Since no real progress can be made in correlation of studies until one is fairly clear on this subject, I invite attention to a preliminary discussion of it.

LOGICAL VS. PSYCHOLOGICAL ORDER IN STUDIES

To scientists or other scholars the subjects taught in the schools are like full-grown oaks—they exist in their developed state as completed wholes. Each part has its proper place, each performs its appropriate function with respect to other parts and the whole, while all the parts are present at the same time, whatever may have been the original order of their appearance. So far as the knowledge to be imparted in the schools is concerned, each subject may be said to be a complete whole. It is a system of human knowledge that has been already developed. What has been discovered respecting it has been reduced to a system in which each element finds its appropriate place. As an illustration of what is meant, suppose we think of what has been learned in the field of animal life. All this vast accumulation of facts has been duly organized, and the relation of each particular to every other has been scientifically determined. Now in any such organization of knowledge some logical order must be determined upon. This order will vary according to the standpoint of the organizer. With the evolutionist there is but one logical order, and that is the order of supposed development. Accordingly, we find a systematic arrangement, beginning with the lowest orders of one-celled animals. Arithmetic, likewise, or mathematics in general, exists as a developed system, and as such has a certain logical order or sequence of parts.

To the child, standing at the portals of the school, none of these departments of learning are developed wholes. If to the teacher they are like full-grown oaks, to the child they are like acorns, which must grow from very small beginnings to whatever they are to become. Now, in such a case, when a subject, however complete it may be in the mind of the teacher, must *come to be* in the mind of the child, where the elements do not lie ready-made side by side, but where one must follow the other in time, the question naturally arises: Is the logical order of the complete science as the teacher knows it the psychological order as the child must learn it?

In illustration of this question we may ask if the logical order of evolution is the psychological one for beginners in the study of biological sciences. Ought children of the primary or grammar grades to begin by studying the simplest forms of the protozoa? Suppose we say, "Yes, this is the logical order in the subject, and what better guide can one have for teaching it?" Let us see if any difficulties arise. In the first place, a new and strange instrument of observation, the microscope, must be used. At first it would be a novelty and hence interesting, but the interest would be transient and not really connected with the subject of study. In the next place, the child would be set to studying something entirely out of relation to his former experience, so that apperception could have but a feeble chance of establishing important relations between the undifferentiated forms under the microscope and the body of knowledge already acquired by the child. To the veteran microscopist barely perceptible spots on the slide might induce the greatest mental excitement, because of the significance they are seen to have in verifying a theory or in opening up an unknown field, say in medical science. To the child who does not possess even the rudiments of scientific interest such spots would have little more significance or interest than so many fly specks. All such attempts fail of necessity, because they ignore the laws of apperception; they take no account of the interpreting knowledge of the pupil, or of his natural or acquired interests.

It is in mathematics, perhaps, that the logical order of the developed subject comes nearest to being the pedagogical order for the learner. It must, finally, suffice to say that the pedagogical order of the various parts of a subject of study should be determined, primarily, in view of the pupil's apperceiving capacity, his knowledge, and natural interests, and only secondarily by the logical order of the developed science. It is in this respect, practically, that President Eliot impeaches the present curriculum. He charges the grammar school with taking far more steps in mathematics than a pedagogical order of development of the subject demands, thus wasting time, and boring the pupils to death with tedious superfluities, which, though perhaps having a place in the logical order, have yet none in the pedagogical one.

PURPOSES OF CORRELATION

But even when the validity of the psychological principle of sequence is admitted, we are still far enough from any effective correlation of studies, since each study may be allowed to pursue its own path quite independent of the others. Geography, for instance, may be taught in complete isolation from history on the one hand, and from botany, zoölogy, and commerce on the other, though it has in reality intimate relations with all of them. It is evident that a correlation of the branches named would seek to bring really related parts into such juxtaposition in the curriculum that the more obvious relations might be brought to the consciousness of the child.

The method and extent of our correlation will evidently depend upon the ultimate purposes we have in attempting it at all. Perhaps our leading purpose is merely the practical one of saving time by preventing unnecessary duplication, and by eliminating non-essentials. This is undoubtedly a worthy motive for co-ordination. It may be that we seek to stimulate the child's interests and efforts through the added intellectual pleasure that comes from discovering the causal or curious relationships between phenomena apparently independent. Thus to discover the causal relations that exist between physical configuration of the land and animal life or historical events, lends a new delight to study. Our design may perhaps extend to the further effort systematically to develop the apprehending power of the mind by building up in every widening outlook an apperceiving power, bringing to consciousness the chief relations that exist in reality. Understanding and thinking might be defined as the apprehension of relations, so that if a proper correlation of studies will bring to view many important relations that would otherwise remain hidden, it is only rational to suppose that the apprehending power of the pupil will be greatly augmented by suitable correlation. We may finally, like Ziller, seek to direct and develop the whole moral disposition of the child, making this aim our sole guide for the unification of the studies.

GERMAN EFFORTS—THEIR DEFECT

Ziller and his disciples in Germany have attempted a systematic co-ordination of the whole curriculum, on the idea that the development of character is the chief function of the school, and on the psychologico-historical principle that every child in his mental development passes through the same evolutionary stages that the race has manifested in its upward movement. According to this idea the subject matter of instruction best fitted for a child at any given period of his life must be chosen from the classic writings left by the people of the historical epoch most exactly corresponding to his present stage of development. This can, perhaps, be made to work in the case of those departments of learning in which any records have been left, namely in literature, history, and perhaps in language and fine arts, but it can evidently have little or no reference to the natural sciences, which have been developed in recent times. Ziller's device to avoid this difficulty is to make the humanistic group, comprising history, literature, and language, the leading studies, and then to associate the others with them as well as may be. Thus, for example, while the first grade pupils are learning the twelve Grimm's *Märchen*, or fairy stories, proposed by Ziller, they at the same time study the animals and natural phenomena mentioned therein. In connection with the Star-Dollar story, object lessons on the following subjects are given: The schoolroom, the bed, clothing, food, the garden, the field, the wood, the heavens, directions, and the schoolhouse. In the second grade, where the story of *Robinson Crusoe* furnishes the literary basis of the curriculum, we find such topics as the following treated: The Hörsel, the Werra, the Weser, and the sea; pond, canoe, boat; house structure and outbuildings; money; divisions of time; fire and light;

the cabinetmaker; the neighboring landscape; forest trees; meadow and meadow flowers; forest birds; the basketmaker, and so on, each topic being connected with some incident in the story of *Robinson Crusoe.* But in the third and fourth grades, when the science work begins in earnest, there is a practical abandonment of the attempt at a close correlation of humanitarian and nature studies, though the semblance is still preserved. It seems to lie in the nature of the case that the attempt to connect every natural phenomenon with some humanitarian subject having ethical content is foredoomed to failure, or can at best but yield a poor semblance of moral training. The solution of this problem as it presents itself to-day must surely be wrought out on somewhat broader lines. Ziller's plan is not co-ordination of studies, but subordination of all other studies to those having a distinct ethical content. In this connection it may be incidentally remarked that *Robinson Crusoe* is taught in the second grade ostensibly as the center of the ethical group, whereas it is not essentially ethical, but economical. It develops in reality the industrial instincts of the child, while the ethical element is dragged in or magnified out of all proportion in order to fit an artificial scheme of co-ordination. I am persuaded that the effort to attach a moral to those things not inherently moral in their nature is harmful rather than beneficial, and that character is not promoted by perpetual tinkering on the part of the teacher. Nor, on the other hand, can we hope to secure a philosophical unity of knowledge in the mind of a child. Such a thing is not only undesirable, but impossible. What we may hope to do is to arrange the programme economically both as to time and effort demanded. We may greatly enhance interest and apprehending power by bringing constantly into the child's consciousness the minor unities and relations that lie close at hand, and for whose grasp he is entirely capable; and we may indeed favorably affect the pupil's whole volitional life by revealing more clearly the intimate connections that should exist between knowledge and action.

PROPOSED PLAN OF CORRELATION

Instead of proposing, then, as Ziller does, one central core of instruction, namely literature, history, and religion, to which all other branches shall be subordinated, clinging to it like iron filings to a magnet, I propose three co-ordinate cores, or centers, of unification, and one universal correlating study binding them together.

The first core is the humanistic group of studies having a distinct ethical content in literature and history, and a historical development arising from human progress through different stages of civilization.

The second core is the group of nature studies having no specific ethical content and no long progression from primitive to higher and higher truths, since these studies are the results of but one stage in civilization, and since all progress in science has been rather a succession of leaps from error into truth than a gradual development of truth. Alchemy preceded chemistry; astrology, astronomy; and the Ptolemaic mistake, the Copernican accuracy.

The third core represents the two factors man and nature in interaction, and may, in the absence of any accepted term, be called the economic core. On the one side it shows the modifications needful in nature to fit it for the uses of man, and on the other it trains man directly to enable him more fully to utilize nature.

The universal study that is to bind these three cores together into a co-ordinate whole is geography. It is at once a study of the physical basis of science, a consideration of the seat and conditions of man's ethical and political progress, and a practical exemplification of how man realizes his power in economic functions and development.

THE HUMANISTIC CORE

However much our ultimate theories of education may differ, I think it may fairly be asserted that in elementary education our best thinkers unite in the opinion that concrete, interesting matter is far preferable to the dry bones of purely formal and mechanical instruction. In place of the old motto of discipline *and* knowledge we have really adopted in practice the new one, viz., discipline *through* knowledge. Furthermore, the present almost universal interest in ethical training leads to the conclusion that our former standpoint of mere intellectuality in school education is being gradually shifted to one that takes far more cognizance of the need of developing moral character. From these facts I am encouraged to believe that the proposition to make literature and history one core of unification, with which more formal studies may be associated, will be received as seasonable and practicable.

In the studies of this core, and with proper limitations, Ziller's principle of following in the main the chief epochs of civilization is a workable one. Literature should begin with the fable, which is of Asiatic origin, and which presents the economic or utilitarian standpoint of action. The fables represent virtuous action as paying larger dividend of pleasure and advantage than vice or wrongdoing. These should be accompanied by folklore and fairy tales, which have taken their origin in the primitive stages of society, and which introduce moral ideas as ends of action. From here on the literature should show, in gradually broadening relations, the chief situations in which the individual may stand to organized society. Alongside of this ideal presentation of human action and its results should stand the historical, and by following a like principle there will be no serious difficulty about unification. Early history will begin with mythology, which will easily blend with the early literature, and will proceed to biography, which will assume largely the literary coloring in the mind of the child. This will gradually merge into history proper in the upper grammar grades.

Human deeds both actual and ideal are the expression of ethical forces, but language is necessary for their preservation and transmission. Language study becomes, therefore, merely the formal aspect of literary and historical study. In the elementary grades it is the mother tongue that we must deal with, so that a sufficiently close co-ordination with these studies may easily be brought about. Language lessons and reading grow naturally out of these subjects, to say nothing of their equally close correlation with nature studies.

In my view, therefore, the literary and historical treatment of the deeds of men, together with the literary aspects of nature, such as are represented in John Burroughs's admirable books, forms naturally the core for all direct efforts at ethical training so far as such training may be presumed to be based upon the curriculum, at the same time forming a core about which the more formal language work may be associated.

THE SCIENTIFIC CORE

In the case of nature studies, the leading purpose and unifying principle must be presumed to be scientific rather than ethical in the narrower sense of the term. That it may be clearly understood in what sense science is or is not ethical, we should clearly distinguish between an ethical instrument and an ethical content. It is quite possible to give a boy a training in science that shall be ethical in a high degree, since he may be taught to be careful, diligent, painstaking, and truthful in all his mental operations. Blacking boots or sawing wood might also yield the same ethical lessons, yet we should not ascribe ethical content to the blacking, the brush, the wood pile, or the saw. It is the boy's action that has the ethical quality, and in this case the things used are only the instruments of an ethical deed. In the same way science studies have a high value as instruments in the training of character, but since their content is scientific, material fact, having no quality of good or bad will, they certainly are ethically quite indifferent. Whereas, then, the content of literature and history is ethical, since these exhibit the good or bad will of men, the content of nature studies is in the last analysis non-ethical or scientific, since it pertains solely to the facts and laws of nature.

For reasons already given it is clear that the historical principle has little or no applicability to this group of subjects. We must therefore find other and more practicable bases for unification. It can hardly be said that scientists themselves are a unit as to what should constitute the proper selection, sequence, and correlation of topics in nature studies; indeed, not very much thought has been given to the subject. Twenty years ago teachers were declaring that science has small value for education or discipline in any field. Its knowledge value was conceded, but since nearly all sought to teach it in accordance with the methods common in languages, mathematics, and philosophy, its own peculiar excellence as an instrument in education did not appear. In the higher education all this has been changed, so that science is now valued by liberal-minded men as much for its educational discipline as for its useful information. Science has become a clear exemplification of the principle of discipline *through* knowledge. The most, perhaps, that we can claim regarding nature studies in elementary grades is that men are now ready to grant the priority of psychological grounds in sequence of parts and co-ordination of branches. The tendency has been to a tandem arrangement of subjects and a logical sequence of parts. This position has been, or is destined to be, abandoned. Mr. Jackman in his most suggestive little volume on *Nature Studies* fully accepts the psychological needs, and the opportunities of season and situation as a guide to selection and arrangements. In the month of September he offers topics from zoölogy, botany, physics, chemistry, meteorology, geography, and geology, though not requiring a consideration of all of them. He says, "Nor is it so important, as many teachers suppose, to use the material afforded by any particular subject in a fixed order. In zoölogy, for example, it matters not the least whether the child begins with a vertebrate or an invertebrate, provided in that particular thing there is something which he wishes to study. In botany it matters not whether it be a fungus or a flower that opens up this great kindgom of life to him. The mistake made on this point by teachers is a fundamental one, and it lies in supposing that those objects which are physically near to the child are the only ones which have a psychic nearness to him. A bright butterfly, or even an oyster, is much nearer, psychologically, to the child than a house." "In disposing of this difficult question of arranging a course of study, and selecting suitable material," he continues, "the teacher must take his cue from nature and from his own immediate surroundings. The work should therefore be planned to suit the changing and recurring seasons."

The practical elaboration of the selection, sequence, and correlation of topics in the nature studies must be intrusted to the thoughtful leaders in this field. Illinois science teachers, led by Professor S. A. Forbes of the University of Illinois, have been working at the problem for some three years.

Just as language constitutes the formal aspect of humanistic studies on the one hand, so mathematics is the formal aspect of nature study in its quantitative relations on the other. Our elementary work has heretofore been practically divorced from any considerable concrete matter, and taught chiefly as an abstraction. Now while nothing can make mathematics easier than it is by nature, much can make it easier and more interesting than it has been in practice. Professor Jackman points out that about the only concrete matter we have used has been the idea of value. That there is a much wider range of concrete data that may be used, connecting number with many aspects of nature, he shows theoretically in his recent article in the EDUCATIONAL REVIEW,[1] and more fully and practically in the last report of Superintendent Bright of Cook County., Ill., which contains the most thoroughgoing attempt at correlation of studies that I have seen in English.

THE ECONOMIC CORE

The third core of instruction, which I have called the economic, has been but partially recognized in our course of study. Since it deals with a double-sided relation, that of nature to man and that of man to nature, there are two sides to a curriculum logically correct in this respect. One is the direct physical training of the child for mastering and utilizing the forces of nature, and the other is the more contemplative study of the actual manifestations of nature, such as are seen in industries, commerce, agriculture, and the like, for the uses of man. The first of these two sides is the very important practical education now known as manual or industrial training, and the second is the imaginative view brought to light through literature, re-enforced by the commercial, social, and political aspects of geography.

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[1] EDUCATIONAL REVIEW, V: 35.

Not being a specialist in manual or industrial training, I cannot speak authoritatively as to the best principle of sequence, but imagine it will depend mostly upon psychological and other practical grounds. It is evident that no sequence, however philosophical in itself, can be adopted that plainly transcends the capacity of the schools with respect to teachers, materials, or appliances. In the model department of the Cook County Normal school, cardboard Sloyd occupies the first four grades, and wood Sloyd the remaining four, there being a continuous line of application of this work in making physical apparatus for use in the school throughout the period. Whenever practicable, knitting, sewing, and cooking may be taught to the girls.

I think we have not seriously attempted to select a body of literature that should stimulate the mind to an interest in this correlation between man and nature, yet may we not do so? The main parts of *Robinson Crusoe*, already referred to, have for their chief content the industrial or economic problem. *Robinson's* constant thought is how he shall preserve his life and add to his comfort by mastering nature with the slender means at his command. As before indicated, the followers of Ziller are making great use of this narrative, but they diminish sympathy with their movement by insisting that the book is ethical in its chief function rather than economical, as it really is. The surest evidence of this fact is that most children are at once stimulated by their reading of *Robinson Crusoe* to dig caves, and construct boats, pottery, and the like, the ethical element remaining in the background unless forced upon their notice. Children are quite capable of profiting by the story of *Robinson Crusoe* at the age of seven if it is narrated to them, but they cannot read it before the third or fourth grade. More advanced imaginative literature may be found in Jules Verne's books, *The Swiss Family Robinson*, More's *Utopia*, *The House that Jack Built*, *Lawrence's Adventures Among the Glass Blowers*, Rutledge's *Every Boy's Book*, and possibly for the highest class Bellamy's *Looking Backward.* Some of this literature may be incorporated with the regular reading work of the appropriate grades, but most of it should be placed in the school library.

Just as language is the formal side of the ethical core, and mathematics of the scientific, so mechanical drawing is the formal side of the economic core, and may be closely co-ordinated with it.

We have now three parallel-lying and somewhat independent cores of unification about which closely related subjects are grouped. The chief idea of the first, taken in a broad sense, is ethical, representing the deeds of man as a free being, the principle of sequence being the historical; the spirit of the second group is scientific, not ethical, and it represents nature in its independent aspects, the principles of sequence and correlation being determined chiefly by psychological grounds and outward circumstances, and only secondarily by the logical order of developed sciences; the third core of unification represents man and nature in interaction, and lays the chief emphasis upon preparing the child through industrial training the better to master and direct the forces of nature, providing at the same time a literary or imaginative contemplation of the economic field, and also a study of actual conditions in commercial geography.

Before considering geography as the universal study correlating all three branches in a very wonderful way, it may be well to mention some minor phases of correlation that cannot ultimately escape our notice. In the first place, I would point out the fact that nature has its literary side, and may serve at once as a basis for a part of the reading and also of the language work, while drawing, as an æsthetic discipline, has manifold relations to nature and to the historical and literary phases of the curriculum. It thus becomes in a way a formal band joining the cores together. Music as another æsthetic branch is, so far as language content is concerned, closely associated with literature.

GEOGRAPHY THE UNIVERSAL STUDY AND BOND OF UNITY

Heretofore geography seems to have been taught mostly from the political standpoint; that is, it has been used to show the present resultant of all the historical forces; but our conception of the function of geography is at once broadened when we look to it for a partial answer as to how the facts of political geography have come to be as they are. In other words, while we study the processes of history we look to physical geography to show us the conditions and determining natural forces that have brought results to pass. This aspect of geographical science is forced upon us in a measure when we consider such events as Napoleon's disastrous Moscow campaign, but history as often taught is as unconnected with the earth as if all its events took place in the upper air. Since history must not only have a place in which to unfold, but the unfolding itself is largely dependent upon the physical features of the country—its mountains, rivers, seacoasts, forests, and climate, we have an explanation of the fact that geography, as the physical basis of history, is now becoming an important study in the curriculum. The elementary aspects of this relation should appear in the teaching of history and geography in the grammar schools.

Geography has also the most intimate connection with the biological sciences, since conditions of soil, climate, elevation, and contour, determine the character and extent of the flora of a country. At the same time they determine the food supply of animals, thus forming the main condition for their multiplication, distribution, and migration. In other words, whereas science studies plants and animals as individual things, we find in geography the chief external conditions of this existence in its manifold variations. To no small extent, furthermore, do we find in geography a physical support for other phases of science study.

Finally, what is perhaps one of the most important fields of geography has been almost wholly neglected in the schools, viz., commercial geography. This shows in a remarkable way the interaction of the two factors, man and nature, and forms an important function in the economic education of the child. The foundations for this study are easily and fairly laid in the early home geography. While the child is out of doors gathering the elements of his geographical concepts, he may at the same time study the forms of industry at his doors, even if it be no more than the industry of the farm. A line of questions as to what is produced in the neighborhood and what becomes of the product, what is received in return for it, will open up a new world to the child. Then when he comes to study the productions of other lands and the geographical conditions that make them possible, following this up by an investigation of the means whereby the production of one land may be exchanged for those of another, he not only gets an enlarged conception of his own place and function in the world, but he learns practically the great ethical lesson that every part of the world, and every man in every part, is trying to serve self through service to others.

In the light of these considerations I think it may fairly be claimed that geography is the universal study, and that when liberally taught it forms the band that binds the ethical, the scientific, and the economic cores of instruction into a living whole.

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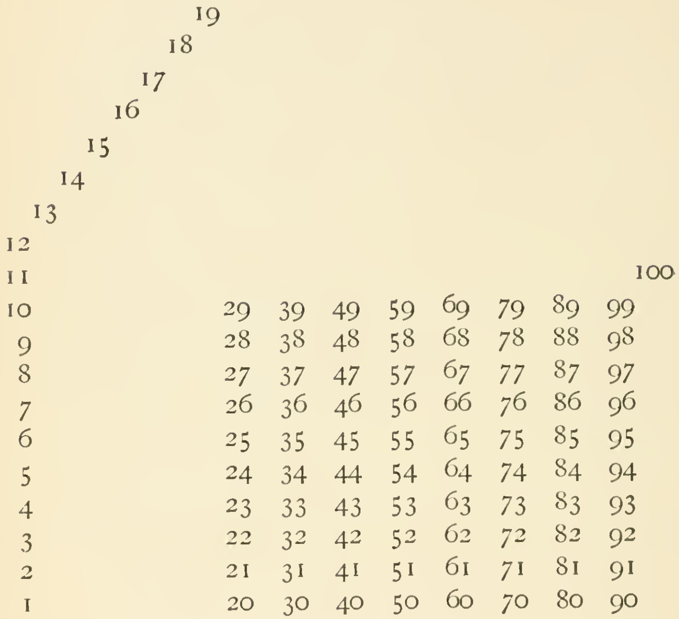
V

THE PEDAGOGICAL VALUE OF NUMBER FORMS—A STUDY

Several years ago the results of the investigations of Francis Galton on the subject of number forms were published, and attracted much attention. Mr. Galton estimated that about five per cent. of grown persons had the abiding mental peculiarity of seeing the numerals from 1 upward in some fixed form, which appeared instantly in the mind whenever it was needed. In response to his requests many diagrams were sent to him representing the various ways in which the numbers appeared to different individuals. Some were curved, some straight, some clear, and some shadowy, some in bright colors, others in dull gray or black. Most of those who had this power reported that the numbers appeared to them on a plane surface, but some described number forms which had three dimensions, and could only be represented by complicated arrangements of wire. Mr. Galton stated that his inquiries and reports were received with great enthusiasm by people from all parts of the kingdom who had individual number forms, and were gratified to find that others had the same mental peculiarity.

Psychological research was not so common then as now, and Mr. Galton remarked that persons of ordinary culture who did not possess number forms were apt to be very indifferent or contemptuous toward the subject. This made his investigations easier, as no time was lost peering into minds that yielded nothing. Those who had number forms found them indispensable to their mathematical calculations, and so firmly fixed in their minds by use were these forms that their possessors were generally able to give a clear report of them.

These investigations were of great interest to me, for ever since my remembrance began I have had in my mind the following definite and unvarying arrangement of the numbers from 1 to 100.



I cannot tell when this form first appeared in my mind, nor why it took its particular shape. I remember reciting the multiplication table by traveling mentally over this form. In reciting the table of 6's, for instance, the numbers 6, 12, 18, etc,, would stand out distinctly from the others as I came to them. In adding, as 13 to 45, the number form appears with the 45 as a bold, central figure, and the mind instantly darts from the 45 toward the right and a little above where the 58 is standing. When necessary the mind makes two motions, as in adding 27 to 45, one straight across to 65, and then downward to the right where the 72 stands. Subtraction is performed by reversing the motions.

An objection has been made to this process that it is long and tedious. But it is only tedious in the description. The process is instantaneous; the form flashes into the mind like a very familiar picture. It seems evident that the ideas of direction and distance that belong to a number form must be of assistance in perceiving the relations of numbers, just as the ideas of direction and distance connected with the diagrams used in geometry are an assistance in perceiving space relations.

It will be observed that the number form given above is irregular up to 20. This irregularity is a positive disadvantage. For example, it has always required more mental effort to add 7 to 8 or 18 than to add it to 68, for the former had to be reckoned or remembered, while the latter appeared at once in its proper place in the number form, just as a certain figure appears on the typewriter when we look in the right direction for it.

Investigations among the few people whom I have met who had number forms, and hence were responsive to questions about them, show that the forms, however complicated and irregular they may be, are always a great assistance in arithmetical calculations.

Being asked if they can work more quickly and accurately with than without their number forms, they invariably reply, in substance: "I don't know. I have no idea how I should work without them, for I always use them." One lady whose number form was very extensive, told me that she could think of millions as easily as of tens. When she drew a part of the form the reason was plain. Each one of the numbers to 1000 had a set of ten numbers branching off from it, and the branching sets were branched again. It all looked very complicated and cumbersome, but she assured me that it made her concept of a million very clear.

Being a teacher, and hence inclined to look at new subjects for their teaching value, it occurred to me on reading Mr. Galton's writings that it might be possible, by presenting a regular scheme of numbers to little children, to give to them, or at least to many of them, a number form which should facilitate their arithmetical operations all through life. I was encouraged in this idea by observations made upon my own mind and those of others. Many persons had told me that they always saw the alphabet in a vertical line from A downward to Z, *just as it was printed in the spelling book which they used in childhood.* I always see the alphabet in the following order:

A B C D E F G H I J K L M N O P Q R
S T U V W X Y Z,

just as it was written on the blackboard of a certain primary school which I attended.

Every psychologist recognizes the value of local memory in learning tables or lists. No skillful teacher would have his pupils recite the declension of Latin nouns in varying order, beginning one day with the genitive and another day with the ablative. He knows that the unvarying order from nominative to ablative which is in general use helps to keep the form in the memory, and that the concept of the paradigm is freshened by every repetition which the pupil happens to hear or see. The systems of outlining and diagraming, which at one time were supposed to be about to place all ascertained knowledge within the grasp of even weaklings, derive much of their value from this well-known principle of local memory. The methods of memorizing, which are the foundation of most of the "memory systems" that are advertised with a view to catching the half eagles of the unwary, are said also to depend upon this principle of local memory applied to mental picturing, and their worthlessness is said to be due to the fact that they place in juxtaposition representations of ideas which are in no way related. But the numerals follow one another in regular succession, so that it was judged that an attempt to give them a "local habitation" as well as name, would violate no law of the mind. It was reasoned also that numbers arranged and spaced in any convenient fashion would be more easily grasped and worked with than when unclassified.

Becoming interested in Dr. Stanley Hall's investigations into the minds of children, I was encouraged by them to work in that direction, and determined to make an attempt to arouse number forms. Unfortunately my school, being a small private school, had very few little children in it.

In considering ways for giving children concepts of number connected with space it seemed necessary that these, in order to be retained, should be presented to children when they began to think number, and continuously for a long time. Of course it would be worse than useless to question a little child directly as to the existence of number forms in its mind. Children lack the power of introspection, and they have great imaginative power, and are in danger of unintentionally becoming mental hypocrites by furnishing the investigator any mental peculiarity he may be looking for as soon as they understand what is wanted. The better the child, that is, the more responsive to the teacher's will, the greater the risk. For this reason the investigator is likely to be misled when he attempts to discover the contents of children's minds by direct questioning, and must depend largely upon indications which are thrown out unexpectedly, and in many cases at long intervals.

One of my pupils showed great readiness in dealing with fractions when first introduced to the subject. The question "What is $\frac{9}{7}$ of 21?" being asked, she gave the correct answer instantly, while the rest of the class were getting ready to solve it. "How did you get it so quickly?" asked the teacher. "Why," said the girl, "there is 21, and the other two 3's that go on and look different." She could not make her meaning clear, and she was not urged. At another time being asked for $\frac{7}{8}$ of 100 she instantly gave $87\frac{1}{2}$. Being invited to explain her quick method for the class, she replied: "I cut $12\frac{1}{2}$ off from the right hand side of the 100," making an illustrative gesture with her right hand. Her work in arithmetic was always remarkably clear and accurate, but her explanations were usually more interesting to her teachers than beneficial to her schoolmates. It was evident that she was visualizing numbers in some way, but it was impossible to tell whether she had a permanent number form or was merely making a fleeting mental picture. She passed out of my observation for a few years, during which our attempts to give the children of the school a basis for number forms were carried on. A short time ago, during one of her college vacations, I asked her directly if she had any particular way of seeing numbers mentally. She immediately gave me the following diagram:

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She illustrated her way of adding by saying that in adding 8 to 25 her mind first jumped from 25 to 35 and then down two spaces to 33. To the comment that it seemed wasteful to make two motions for so small a number as 8, she answered that she was obliged to do so whenever the added number was so large that she had to jump to the next column. I suggested that probably that was due to the fact that her number form was inconvenient in not having the columns side by side, and asked her to arrange them so for a moment, and then add. She said that it confused her, and we laughingly agreed that a Society for the Prevention of Inconvenient Number Forms would soon be in order. Being questioned as to what she meant by "jumping," she said that the numbers appeared upon a flat surface, and that the motion of her mind seemed to be in a curve, rising from the number which she started with, and pouncing down upon the right number where she stopped. I knew nothing of that, as I pass from one number to another in my mental diagram, in the same way in which I turn from the paper on which I am writing to the figures on the clock face, with no cognizance of intervening space nor of motion across it.

The attempt to promote directly the growth of number forms in the minds of children was begun in my school six years ago. The object to be attained being thoroughly understood by the young lady who had charge of the primary children, a conscientious and enthusiastic teacher, we arranged our plans. Not knowing of any similar work we were obliged to think out each step, and to change our plans and bring in new devices as they seemed to be needed.

The decimal notation and the common habit of numbering downward suggested the following form:

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

All the little children who came into the school were given as a part of their manual work the copying of this table of numbers. The aim kept before them was to make the work neat, regular, and with beautiful figures. It was copied on paper, on the slate, and on the blackboard. The best work was left on the board until some other child succeeded in making a prettier table. An especially good paper copy was pasted in a scrapbook along with fine penmanship, maps, and drawings, and the child was brought to the favorable notice of the principal. The children were encouraged to decorate their number tables in various ways, but were not allowed to change the arrangement of the figures nor to suppose that they could be changed. If we gained nothing else we got neat work and an interest in it. The regular work in number went on at another time of day, with no connection whatever with this table of figures. The objective method of building numbers was used in the regular work, and any reference to the number table was carefully avoided until the children had learned the numbers up to 10.

By that time the number table was an old story, and though one was always kept in sight in order that it might be unconsciously absorbed by the minds of the pupils, little work was done with it except when a new pupil came in. After the number 10 was mastered the children were set to the formal learning of the multiplication table beginning at the 10's. They wrote the number table, making the multiples of 10 in bolder figures as below, or with colored crayons.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**

They were taught to count by 10's, stopping at 100, to notice and state facts about 10, and to recite the multiplication table of 10's. They were led to consider the 10 as a whole. Four 10's were as concrete to them as four upright sticks, with the added advantage that 40, the sum of the four 10's, was staring at them from the lower right-hand corner of the included space. The children soon learned to return the stare. They were drilled in adding, as 10 to 4, to 14, to 24. They pointed out the results on the table, just as they afterward pointed out places on the map. They subtracted by spacing back to the left, and performed easy divisions or partitions, such as ½ of 60, ¼ of 40. As soon as they were able they were exercised without referring to the board. When they failed they were told to "think how it looked," and if they still hesitated they were told to look at the table on the board. They were led to locate numbers by such questions as "What is the last number of the seventh 10?" "What is the third number of the fifth 10?" After they had worked on the 10's until each child had learned the combinations, and had used all the desirable colors of crayons, still trying to make "pretty work," the 5's were taken up.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	**15**	**25**	**35**	**45**	**55**	**65**	**75**	**85**	**95**
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**

The reason of this choice is obvious, as the 5's are simply divisions of the 10's. The children took up the 5's in the same way, counting by 5's, reciting the table, adding and subtracting by 5, making simple partitions, answering such questions, as "Point out the seventh 5"; "What is its middle number?"

The tables of 10's and of 5's are well adapted to division into regular geometrical forms, and we made the most of them. In taking the next step it was considered that as the 9's stood next to the 10's, and made fewer divisions of the numeral form than the smaller numbers, that table should be selected. The result was so satisfactory that we have never varied from that order. Below is the table of 9's as it was presented:

1	11	21	31	41	51	61	71	**81**	91
2	12	22	32	42	52	62	**72**	82	92
3	13	23	33	43	53	**63**	73	83	93
4	14	24	34	44	**54**	64	74	84	94
5	15	25	35	**45**	55	65	75	85	95
6	16	26	**36**	46	56	66	76	86	96
7	17	**27**	37	47	57	67	77	87	97
8	**18**	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	**99**
10	20	30	40	50	60	70	80	**90**	100

One little fellow exclaimed on first seeing that table: "How easy that is! It just runs right uphill." One advantage of our very small classes (there were rarely more than three in the little folks' class) is the freedom of speech and action that may be allowed. We heard from the children many interesting and instructive comments, which almost compensated us for the misfortune of having so few children to work with. Another child discovered that the table of 9's gave a number constantly decreasing by one in the unit's place, and was very much surprised and a little disappointed to find that that fact had been found out before. Another expressed contempt for an older child in another school who didn't know the 9's, saying: "Anybody who knows enough to go upstairs ought to know the 9's, because they just go up by steps all the way." The idea of steps is generally popular, and more than one child has told her teacher that she "liked the short flight the best" meaning 90 and 99. Although the 9's look so easy, it takes some time to learn them, and the children often have to refer to their number tables. As besides teaching the multiplication table we have the secondary aim of giving the children permanent impressions of the number tables to be recalled at will, or to come as true number forms do—involuntarily—we allow them to refer to the table very freely, our observation leading us to believe that a child will not even turn his head to get a form which he can get without turning it by looking into his own mind. If the form is not in his mind we would rather take a good deal of trouble to give it to him than to have him choose the wrong form, for every time that he entertains a wrong idea he blurs the impression of the right one already made.

The same considerations that led us to select the 9's induce us to take the 8's as the next table:

1	11	21	31	41	51	61	71	81	91
2	12	22	**32**	42	52	62	**72**	82	92
3	13	23	33	43	53	63	73	83	93
4	14	**24**	34	44	54	**64**	74	84	94
5	15	25	35	45	55	65	75	85	95
6	**16**	26	36	46	**56**	66	76	86	**96**
7	17	27	37	47	57	67	77	87	97
8	18	28	38	**48**	58	68	78	**88**	98
9	19	29	39	49	59	69	79	89	99
10	20	30	**40**	50	60	70	**80**	90	100

The stairs are steeper now, and there is more to review, and the work goes more slowly. After taking the 8's we have tried two different plans. In one case we went on with the 7's, 6's, 4's, 3's, and 2's. In the other we considered that the 4 was a convenient part of 8, and used the table of 4's directly after the 8's, and for the same reason the 2's immediately after the 4's, then going back to the 7's and taking the omitted tables. As we always keep up the review I do not know that either plan makes any difference in the ease with which the children learn the tables. They take the 2's and 3's very easily in either case, for they have become expert in counting. We have usually followed the second plan, because by it we sooner reached the small numbers, and our work was in this way connected with the regular work about the apples and the triangles and all the objects pictured in the primary arithmetic.

1	**11**	21	31	41	51	61	71	81	91
2	12	**22**	32	42	52	62	72	82	92
3	13	23	**33**	43	53	63	73	83	93
4	14	24	34	**44**	54	64	74	84	94
5	15	25	35	45	**55**	65	75	85	95
6	16	26	36	46	56	**66**	76	86	96
7	17	27	37	47	57	67	**77**	87	97
8	18	28	38	48	58	68	78	**88**	98
9	19	29	39	49	59	69	79	89	**99**
10	20	30	40	50	60	70	80	90	100

The 11's offer so pleasant a slope that they can be presented at any time after the 9's. We usually gave them as a relief from the sharp climbing of the 7's or 6's, if the children had not in the meantime presented them to us.

Of course we never set a child to learning a table from his book. We want them to think number, and we should feel very guilty if we put children on such a mental scamper as is involved in trying to think number while repeating "Seven 2's are 14, seven 3's are 21," etc.

Limits of space forbid the mention of all the devices by which we have tried to fix the forms in the minds of the children, but I have written enough to give an idea of our attempt to anyone who may be impressed, as I have been, with the pedagogical possibilities of number forms.

I am aware that it is contended by many that children should be taught number only in the concrete, and that there is much disapproval of what is called figure manipulation. It is true that poor work is done in arithmetic by allowing children to manipulate figures, the signs of number, before they have learned to think number. But the method of representing number by objects, as toothpicks or pebbles, is only applicable to small numbers, and is entirely inadequate to the demands of the multiplication table. In our attempts to arouse number forms we go consciously into figures, trusting to the growing minds of the children to make the connection between figures and numbers at the proper time, just as every mind does that masters arithmetic.

Whether they have permanent number forms or not we cannot yet tell, but they certainly had them while they were learning the multiplication table, and probably they needed them more then than at any other time of life. We discovered that we were robbing the multiplication table of most of its terrors. To those children the multiplication tables were not a succession of statements of unrelated and memory-slipping facts, but a record of their own personal observations on the relations of numbers.

A girl from the sixth grade once entered the school who was very deficient in arithmetic. Watching her multiply wrongly one day, I leaned over her shoulder and said, "Seven 9's are 63." She looked up quickly into my face for possible sarcasm, but finding none went on with her work. Her seat was near my desk, for I had placed her there for the double purpose of studying her and of directly influencing her, as I had heard that she was dull and disagreeable. The next day she quietly asked me for the product of two numbers. She kept that up for several days, arousing much interest in the rest of the class, some of whom seemed to think that they had lost time and ease by not hitting on the plan which worked so well for the new scholar. When it became evident that she really did not know her multiplication table I had her put on cards the tables of 6, 7, 8, and 9, in bold figures, like those above, with the suggestion that when the class were working for speed and accuracy those tables might help her.

I confess that I gave them to her on the same principle on which physicians sometimes prescribe—they could do no harm and might do good.

She used the cards constantly at first, but after a while they disappeared. One day she came and thanked me again, saying that the cards had been a great help to her, but that she did not need them any more. Her work was then about like the average, and so continued. This incident confirmed me in my belief that the only dangers to be avoided in trying to excite number forms in the minds of children are those of wasting time and boring the children.

It has been wisely said: "A child's mind is not a fountain to be reached by boring." Mindful of that we made it a rule to stop active work at the symptoms of weariness, trusting largely to the unconscious absorption of the forms which were constantly before the pupil during the earliest years of school life. If, as Galton says, five per cent. of adults have constructed for themselves a form more or less convenient with which they perform arithmetical operations, it would seem to be not a difficult matter to give to a still greater proportion of children a convenient and helpful form by persistent presentation at the impressionable age at which they learn number. The opportunities offered during the learning of the multiplication table are ample for that. The fact that so many persons have these forms indicates that many minds crave some such scaffolding for their concept of number.

I have always desired to make these experiments in a graded school of ordinary size, where the results could be watched from year to year, and I hope other students of the child mind will make and report experiments in this direction.

As an indication of the tenacity with which the mind clings to its own number form, I may say that with all my thought and work upon the form given to the children I never use it in my own calculations, seeing numbers and reckoning with them by means of the inverted and imperfect number form which I have had since I can remember.

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VI

EDUCATION IN FOREIGN PERIODICALS

The Teaching of Greek

JOHN STUART BLACKIE IN "THE JOURNAL OF EDUCATION" (LONDON)

"When the literary, social, and political influences that combine to give a formative power to the dialect of the upper classes cease to act, then the popular dialect will usurp the vacated throne, and partly out of its own wealth, partly by various adoptions from foreign sources, create what practically amounts to a new language. This is exactly the relation in which Italian and Spanish stand to the classical Latin of the Roman Empire.

"But with Greek it is different; in Greece under the Byzantine Empire no new language could be formed, and for obvious reasons; the eastern or Greek half of the Roman Empire lasted for fully a thousand years after the fall of the western half; and so long as it lasted the natural dominance of hereditary Greek in the educated classes of the political, social, literary, and ecclesiastical sphere could not be disturbed. And when, in the declining centuries of the Greek Empire, first Italian and then Turkish influences began to operate in corrupting the purity of the language, the hostility between the popular Greek feeling against the Latin Church on the one hand, and the Mahometan despotism on the other, was so great that any new formation, such as that which has created modern English out of Teutonic and French elements, and Italian out of provincial corruptions, was impossible. So much so that if, after the taking of Constantinople by the Turks in 1543, even a Dante had stood up to stamp his genius on the most corrupt of local Hellenic forms, he would have failed, in the face of the transmitted culture of centuries, to create a new language for the general Greek people. The linguistic result from the operation of these causes is quite plain. The language called Modern Greek, and used in the Greek newspapers, which have a large circulation, is in no proper sense a new language. As little can the Greek of Plato and

Aristotle, and the other classics commonly read by scholars, with any propriety be called a dead language; the language of Homer bears the same relation to the language of Bikelas and Tricoupis that the language of Chaucer does to the written English language of the present day; there is no break in the living continuity of the linguistic stream, and the slight shades of difference between the Greek language as we know it in its oldest form, and as it is now spoken by every educated gentleman in Greece, are of no more significance than the lopping of a few straggling branches from a stout old tree, or tearing a strip of superfluous lace from a dress gown.

"This being my decided opinion on a subject in regard to which great ignorance and strong prejudice in high places are prevalent, no one need be surprised at the practical conclusions to which such premises necessarily lead. Greek is a living language, and has all the rights that belong to a language transmitted through long centuries to the action of living forces in the present. One of those rights is that it should be taught as French or German is, by living communion with the people who speak it, and that, of all absurd practices belonging to the stiff conservatism of English pedagogues, the most unscientific, at once, and most unpractical, is the practice of studying a living tongue from dead books merely, and dead grammar rules, and, so far as the ear is allowed to play its part in the business, to pronounce the most beautiful language in the world with the insular orthoepy and the unmusical accentuation of the English tongue. Taught in the legitimate way, by living converse with living Greeks, on the spot, if possible, where Socrates discoursed and Paul preached, I have no hesitation in saying that more effective Greek may be learned in five months than is now acquired in five years of painful bookish cram and barren grammatical formalism."

The Teaching of Mathematics

FROM AN ADDRESS BY W. H. H. HUDSON, REPORTED IN THE "EDUCATIONAL TIMES" (LONDON)

"The earliest teaching of arithmetic begins slightly before a child can speak, and is usually carried on far too rapidly as soon as he obtains the use of his tongue. The earliest teaching of solid geometry should begin as soon as a child can play with a box of bricks; of plane geometry a few years later, when he can wield a pair of compasses. This teaching is often deferred too late. The earliest teaching of algebra occurs some years later still, when considerable facility is acquired in the use of the pen, or at least pencil, and when the child, if a boy, has probably come under masculine influence.

"Now all teaching, as Aristotle points out, is based on previous knowledge.[1] Our teaching of mathematics is based on this early teaching which we do not give. It is a strong argument for the improvement of the education of women of all classes, that the early education of all children is almost entirely in their hands; the importance of this early education can scarcely be overrated.

"All mathematical teaching should be conducted so as to accord with the fundamental laws of pedagogy; of these the one which is the first in importance is this: *the understanding of the pupil is to be employed throughout.* This is a general canon of all teaching; it is especially needful to be observed in mathematics. Progress in mathematics is peculiarly hampered by the substitution of memory and imitation for understanding. The multiplication table is often learned by heart, parrot-like, and sung as a song, instead of being formed gradually by the child. Definitions and propositions of Euclid are learned *verbatim* in like manner. Formulæ are allowed to be used without being understood. Methods of doing sums are justified solely by the consideration that the answer comes right. 'Shut your eyes, and write down your equations,' is the advice said to have been given by a coach. All this is wrong; it is contrary to the first law of teaching; it is calculated to stunt instead of to develop the mental powers. Principles, maxims, theorems, formulæ, definitions, should never be given to a learner without his intelligent comprehension of them, under the notion that they thereby obtain a firm place in his memory.[2]

"The amount and the duration of the mental exertion necessary for the study of the beginnings of mathematics, admit of being graduated to suit the power of the pupil, however young. To count the number of chairs in a room is an exercise suitable for an infant, and would occupy a minute. A boy may have three or four sums to do which will occupy him a quarter of an hour. The beginnings of mathematics are entirely mental; no sitting at a table, crouched in an awkward attitude, is needful for an arithmetic or geometry lesson in the kindergarten.

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[1] *Ethics*, Book VI., ch. iii.

[2] In opposition to Bain, *Education as a Science*, p. 206.

"The active exercise of the mind is fatiguing; therefore, lessons should be, for the young, short, and because short, frequent. The pain of fatigue is soon overbalanced by the joy of success; moreover, the pain diminishes as the mental powers increase; nay, even it is turned into a pleasure—a pleasure in the quest as well as in the attainment—'*labor ipse voluptas.*'

"In no subject better than in geometry can the joy of the discoverer be obtained. It is possible to propose to the veriest beginner problems suited to his nascent powers, yet requiring their exercise; while the finger-work necessary for the careful construction of the diagrams, which should be insisted on, affords a relief from the mental effort of discovery. This educating power of geometry is lost by those who set propositions to be learned by heart.

"Some of the propositions of the first book of Euclid will seem to be quite unnecessary to a child who has had a preliminary training in the actual use of the ruler and compasses. Here a fresh difficulty will arise—a difficulty welcomed by the teacher as the opportunity for instruction in the nature of proof; fallacies may be propounded and exposed, and so, early ideas of logic may be instilled, but without the uncouth technical terminology of the logician.

"What are called 'riders,' should be used from the very outset; nay, even the propositions themselves should be primarily regarded as riders, the text being consulted only after a real effort, successful or unsuccessful, has been made to do without it. To facilitate this beneficial exercise, I submit that it may be pardonable to tell the beginner, as facts to be hereafter proved, some properties, such as that the three angles of a triangle are equal to two right angles, or that the angles in the same segment of a circle are equal, for the sake of proposing to him some simple deductions from these theorems.

"In order to assist to develop this necessary exercise of the pupil's understanding, it is a good maxim that the teacher should not do for the pupil what the pupil can do for himself. Self-reliance should be cultivated. But the learner is not to be quite in the position of the first discoverer. The use of the teacher is to guide, to direct, to warn against dangers, to give a helping hand in different places, and so to facilitate progress, but the pupil must make that progress himself. The guide chooses the path and prevents the wrong road being taken; he may help over rocks, but the traveler must walk along the meadow unassisted. A mistake may be pointed out and wherein it consists; the correction should generally come from the pupil.

"The teacher should not set, and should restrain the pupil from proposing to himself, exercises that are beyond either his strength or his knowledge. To strain the mental powers is not to develop them. Here much judgment is required in the teacher. In many cases it is not power or knowledge that is deficient in the pupil, but strength of will.

"Secondly. There is a certain way in which the human mind naturally acts, and this cannot be departed from without injury. There are those who contend that the order in which an individual learns should be that in which the race as a whole has acquired knowledge. Whether this is true in all cases we may be permitted to doubt. But as much as this is certainly true, that the earliest knowledge of the child, like that of primitive man, is derived from the senses. And it is equally true, whatever some philosophers may say to the contrary, that the primary notions of mathematics are acquired through the senses. It is simply impossible to acquire them otherwise. There is, therefore, a certain Law of Sequence, which requires that what is called the abstract idea or notion, should be based upon and formed out of sensible perceptions. It is usually quoted, 'The concrete must precede the abstract.' It is, moreover, a breach of this Law of Sequence to stop short at the sensible perception and not to pass on to the generalization.

"In order to comply with this law we should begin to teach arithmetic with actual things to count. Counting is sometimes made to consist of a rehearsal of the names of numbers. This is a mistake, from the consequences of which some people recover with difficulty. Visible illustrations of the properties of fractions should be used. Actual weights and measures should be seen and handled. We should begin to teach geometry by tangible models of cubes, spheres, cylinders, cones; the pupil should actually rule lines with a ruler, and draw circles with compasses.

"But we should not continue the use of these visible and tangible helps after they have served their purpose. The notions or ideas should be formed so strongly that the mind's eye sees them when the things are not present in later reasonings about them. In fact, the things themselves—the line without breadth, the perfect circle—from their nature cannot be present; the best we can obtain is only an approximation, valuable as an illustration and as a means of acquiring ideas, but no more. Even a badly drawn circle will serve a person who knows what a circle is, but he cannot acquire the idea of a circle from badly drawn circles. He who can draw a good figure need not, he who cannot draw a good figure must. The badly drawn circle does not give a wrong impression to the mind which is full of the true idea of a circle, the mental conception being stronger than the visual image; whereas a badly drawn circle retards the acquirement of the conception of a circle by one who has never acquired it.

"We must be careful also not to carry this requirement of sensible objects too far. It is not necessary to make visible or tangible models of all figures; one who has a knowledge of a triangle, a square, a pentagon, a hexagon, may form a sufficiently accurate idea of a heptagon or a decagon without drawing it, still less is it needful to draw a figure of twenty or thirty sides in order to form a mental conception of it. It is a valuable mental exercise to form such images, but they are formed out of elements primarily acquired through the senses. We build castles in the air out of the images of the battlements and turrets of real castles; but no one can combine ideas that he has not got.

"Progress in mathematics consists in the combination of comparatively few fundamental conceptions. To substitute words for these conceptions is to prevent the possibility of progress. Words, however, have a very real part to play in our teaching, for it is also a part of the Law of Sequence that when a general idea has been formed, then, and then first, should a name be given to it: this is quoted as 'the thing before the name,' thing meaning an object of thought, not necessarily a material thing, and in algebra the name may be a sign.

"I fear we often offend against this law. Do not some of our pupils gabble through the first book of Euclid without really knowing the meaning of 'bisect,' because they have never made an effort to bisect anything, or the third book without knowing the meaning of 'touch,' although the verbal definition of this term has been committed to memory? Such boys, who have merely learned by rote phrases meaningless to them, not only fail to derive advantage from the study of geometry, but by becoming habituated to the use of words without meanings have weakened their mental power, while they have lost the natural curiosity of childhood which should have been utilized to impel them to intellectual effort; thus

> Shades of the prison house begin to close
> Upon the growing boy [3]

too soon, before their time.

"The neglect of natural sequence of mental activity, namely, first the appreciation of the sensible object, then the mental visualization, finally the abstract generalization to which a name is given, may well be thought of as the great cause of stupidity. As the power of the mind grows by its natural use, so it diminishes if disused or abused. 'Whosoever hath not, from him shall be taken away even that he hath.'[4] 'We never saw,' says a well-known author, 'a stupid infant.'[5] It may be that the stupidity of boys is due to our neglect of this canon of teaching.

"The next general law of teaching that we must observe is that of *continuity*. That which is new and unknown should be made to grow out of that which is old and known. Evolution is true in the mental as in the physical world. The particular case prepares the way for the general, the easy for the difficult; the difficulties, even the impossibilities, are the avenues leading to new knowledge; thus, vulgar fractions arise out of division, the negative quantity grows out of a seemingly impossible subtraction, logarithms arise out of the general index, the arithmetic of square measure is derived from the geometry of the rectangle.

"The subdivision of mathematics into separate subjects tends to obscure the connection between them. We should be watchful to seize opportunities of bringing out, whenever possible, the connection of algebra and arithmetic, and of both with geometry. Even the illustrations that we choose to explain a particular point are all the better, sometimes, if they are seen to be connected with the next.

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[3] Wordsworth, *Ode on Intimations of Immortality*, v.

[4] Matt. xiii. 12.

[5] De Morgan, *On Teaching Arithmetic*, Q. J. Ed., ix.

"In order to preserve this continuity, it is essential that the old, the known, must be soundly known and firmly grasped. The pupil should have to unlearn nothing as he advances. The earlier teaching should be designed so that the later can be easily joined on to it. On this account it is desirable that the teacher should have a grasp of subjects beyond what he is actually teaching, that he may prepare the way for the future. It is a mistake to ask an ignorant teacher to take an elementary class.

"Thus the teacher of arithmetic should be watchful to assist the transition to algebra, and the teacher of algebra should frequently bear in mind the subsequent study of the Differential Calculus.

"In arithmetic, subtraction should be taught as a shopman gives change, because this smooths the way for the improved long division. The highest digit of the multiplier should be used first in the multiplication of whole numbers, because this facilitates the approximate multiplication of decimal fractions. Arithmetic may be taught so as to prepare the student to pay regard to dimensions in mechanics, and in the treatment of circulating decimals either sound ideas may be given facilitating the acquirement of the important doctrine of limits, or confused ideas may be allowed to be formed retarding the pupil's progress and throwing additional difficulties in his way. It were better not to touch this part of the subject at all than to do this; in fact, in accordance with the first law of teaching, if the subject is beyond the pupil's comprehension the teaching of it should be deferred. The particular instance quoted, however, is quite intelligible at a much younger age than is often supposed.

"Mathematics are sometimes thought to require operations of the mind different from those employed in other studies.[6] It is not to encourage the art of observation. As we all know, this is not the case. The teacher should take opportunities of exercising this faculty, and should ask his pupils to notice distinctions, and when they have discussed them by clumsy periphrasis, when the *thing* has thus become known, the *name* 'binomial,' 'homogeneous,' or whatever it is, may be given; there are many opportunities for lessons in classification based on observed distinctions.

"Another common mistake is to suppose that mathematics do not admit of reasoning from analogy; on the contrary, the good teacher bases his pupils' apprehension of mathematical method upon the analogy which he guides them to observe in the mode of solution of similar problems.

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[6] "Of observation, experiment, induction, analogy, the mathematician knows nothing."—Sir W. HAMILTON.

"Inductive reasoning is also said not to appear in mathematics. On the contrary, the mathematical teacher will often lead his pupils by particular examples to guess by induction a general formula, and then he will be able to show them how to verify their guess, and ascertain whether their induction is justified. They will sometimes guess wrong, and thereby learn to distrust an unverified induction.

"The use of experiment to ascertain whether a proposed theorem is likely to be true, is another instance of the application of a mode of investigation often thought to be foreign to mathematics.

"Another subject most intimately connected with mathematics is language. One of the aspects of algebra and the differential calculus is distinctly linguistic. It is a valuable exercise for the pupil to translate his symbols into the English language. Clear and exact language is requisite in order to state mathematical problems, and the necessity of using it constitutes one of the difficulties of the learner, but it is a difficulty in the overcoming of which mathematics give much of the intellectual benefit which is supposed only to be derived from the study of a foreign language. The power of stating a physical problem in the language of the differential calculus is an acquisition worth having, even if the subsequent solution of the problem is at present impossible.

"The greatest difficulty of all is in the want of desire to learn; this has been alluded to. When it takes the extreme form of the hatred of knowledge[7] for its own sake, it is simply insuperable. Why people should not want to learn mathematics is a question that would carry us too far from our subject, which is how to teach and to avoid mistakes in teaching those who do want to learn. A main difficulty arises from that chain-like connection of the parts of mathematics which, properly employed, facilitates the learning of it. A weak link in the mathematical chain breaks under the stress that the attempt to make further progress imposes upon it. A student, for instance, who has been allowed to use the sign — without understanding it, who has been contented with a mere 'rule of signs,' can never be trusted, can never trust himself, not to trip in the use of it. Consequently, he cannot follow a blackboard demonstration, cannot simplify expressions correctly, is perpetually hampered by what he thinks are trifling mistakes, mistakes primarily due to a want of proper attention to signs when he was first introduced to them, and his infirmity is now rendered difficult to correct on account of that very familiarity with the signs which, in accordance with the proverb, prevents their receiving respectful consideration.

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[7] Proverbs i. 22, 29.

"One who has never understood thoroughly the relations of length, area, and volume, experiences exceptional difficulties when the more complicated notions of mechanics are presented, involving the further conceptions of time and mass. It is a cruel thing to teach a person arithmetic without giving him the advantage of a rational study of square and cubic measure, or to limit his geometrical teaching so as to exclude the discussion of similar figures.[6] A valuable training is missed, and the want of this knowledge seriously impedes, nay, even sometimes entirely prevents, further progress. All that has been said of the usefulness of so teaching the early subjects as to prepare the way for the later may be repeated as causes of difficulty in teaching the later subjects when the way has not been so prepared, and of still greater difficulty if the earlier subjects have been so taught as to obstruct the acquisition of later ideas.

"A practical difficulty is sometimes the infrequency and length of the lessons; what is wanted for young beginners in mathematics—I suspect that it would be best for all subjects—is frequent short lessons. Some pupils, say for geometry, have two hours a week; now, if this were in four lessons of half an hour each, or even six lessons of twenty minutes each, progress would be rapid and the time ample; but when it is in two lessons of one hour each, much of the time is necessarily wasted on account of the incapacity of the pupils or prolonged mental exertion. There should be short lessons with full attention.

"Another difficulty of mathematical teaching arises from too great dependence on text-books. The order in which a writer groups the various parts of the subject is not always that in which the learner can most easily assimilate and digest the matter. Oral teaching overcomes this difficulty, which is one of the more advanced rather than of the elementary teaching, for the schoolboy rarely reads a text-book."

[6] London University Matriculation, used as a leaving examination.

VII

DISCUSSIONS

THE NEW JERSEY PAROCHIAL FREE SCHOOL BILL

So many inquiries have been made concerning the nature and provisions of the bill recently introduced in the New Jersey legislature to enable parochial schools to participate in the distribution of the state school funds that the full text of the proposed legislation is given below:

A SUPPLEMENT to "An Act to establish a system of public instruction," approved March the twenty-seventh, eighteen hundred and seventy-four.

1. BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*, That in order to increase the public school accommodations and to carry out more fully the provisions of the constitution of this state, wherein the legislature is empowered and commanded to provide for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all the children in this state between the ages of five and fifteen years, that whenever any private school corporation incorporated under the laws of this state, having an average yearly attendance of forty-five or more pupils within the school age, shall file in the office of the state superintendent of public instruction and in the office of the county superintendent of schools in which said private school corporation is located a certified copy of incorporation, together with an agreement signed by the officers of said corporation to maintain their said school a free public school, according to law, it shall be lawful for, and the duty of the county superintendent of public instruction of the county from which application is made, to appoint, within a reasonable time, the president, secretary and treasurer of the said corporation, a board of school trustees, of which the secretary shall act as clerk, and discharge the duties of district clerk now required by law.

2. *And be it enacted*, That said board of school trustees shall be vested with all the powers and privileges, and subject to all the conditions, requirements, duties and penalties contained in an act entitled "An Act to establish a system of public instruction," approved March the twenty-seventh, one thousand eight hundred and seventy-four, with the supplements thereto, and the acts amendatory thereof, excepting such parts of said act, referring to district public schools, as are not applicable to said additional free public schools herein provided for.

3. *And be it enacted*, That no person shall be employed as a teacher by such board of trustees unless he or she holds a regular teacher's certificate in full force and effect, according to law, at the time the engagement is made, and any contract entered into between any teacher and said board of trustees shall not be valid unless the teacher has fully complied with the law.

4. *And be it enacted*, That it shall be the duty of said board of trustees, through the clerk of said board, to make all the school reports within the time now required by law, and to make the additional report, duly verified to the

state superintendent and county superintendent aforesaid, on or before the first day of April of each and every year hereafter, the name, age, name of parents or guardians of all the pupils, residing within the city or school district in which said additional free public school is located, taught in said school or schools, during the school year, together with the average yearly attendance.

5. *And be it enacted*, That it shall be the duty of the board of trustees to maintain and furnish for the use of said additional free public school, all suitable school buildings with the necessary appliances, as now required by law, at the expense of said corporation, and free from all cost or expense to the state therefor, and to maintain said schools free from all sectarian instruction, during the school hours or school sessions.

6. *And be it enacted*, That said additional free public school so established, whether in city, town, or rural district, shall be under the superintendency and inspection of the county superintendent of the county in which said school or schools are located.

7. *And be it enacted*, That the county superintendent of the county in which said additional free public schools are located, shall include the said additional free public schools in making his annual apportionment of public school moneys for the free public schools of the county.

8. *And be it enacted*, That it shall be lawful for and the duty of the county superintendent as aforesaid, in making the yearly apportionment of school moneys, to assign to the said additional free public schools, from the state school money due any city or school district, the same amount per child, residing in city or district and attending said additional free public school, that it cost the state, in the preceding year, for each child taught within the school age, determined by the yearly average attendance in the state.

9. *And be it enacted*, That the county collector, in and for each county, shall be and is hereby authorized to deduct from the state school moneys due any city, town or school district in which said additional free public schools are located, the proportion of state school moneys to which said additional free public schools are entitled.

10. *And be it enacted*, That the county collector in each county shall be the custodian of, and shall hold in trust, all such moneys as are apportioned to said additional free public schools, and he shall pay them out only on the order of the county superintendent.

11. *And be it enacted*, That the county superintendent shall, upon the warrant of the board of trustees of said additional free public schools, duly signed by the clerk and at least one other member of the board, draw a school order or orders upon the county collector, in favor of the teacher or teachers in said additional free public school and for the payment of such incidental expenses as the law allows for public schools.

12. *And be it enacted*, That all such school orders shall be indorsed by the person or persons entitled to receive said money, and that the purposes for which payment is demanded shall be stated in each order.

13. *And be it enacted*, That it shall be the duty of the county superintendent to withhold the aforesaid school order or orders on county collector whenever the provisions of this act and the act to which this is a supplement are not fully complied with in good faith.

14. *And be it enacted*, That all acts and parts of acts, general, special or local, as far as they are inconsistent with this act, be and the same are hereby repealed.

15. *And be it enacted*, That this is a public act, and shall take effect immediately.

The foregoing bill was introduced March 6, 1893, by Mr. Coyle of Hoboken (by request) and was referred, under the rules, to the Committee on Municipal Corporations, by whom it was favorably reported two days later. Before a vote was taken, however, a resolution was introduced and passed to obtain the opinion of the Attorney General as to the constitutionality of the proposed law. Below is the full text of the Attorney General's opinion:

ATTORNEY GENERAL'S OFFICE,
TRENTON, March 8, 1893.

HON. THOMAS FLYNN,
Speaker House of Assembly:

MR. SPEAKER:—I am in receipt of a resolution of the House of this date, requesting me to furnish the House my opinion as to the constitutionality of Assembly Bill No. 416 by this afternoon.

The first section of the bill provides that whenever any private school corporation incorporated under the laws of this State, etc., etc., etc., shall file in the office of the State Superintendent of Public Instruction and in the office of the County Superintendent, etc., etc., a certified copy of incorporation, together with an agreement signed by the officers of said corporation to maintain their said school a free public school, according to law, it shall be lawful for, and the duty of the County Superintendent of Public Instruction to appoint the president, secretary, and treasurer of the said corporation, a board of school trustees. By section two this board of trustees are vested with all the powers and privileges, and subject to all the conditions, requirements and penalties contained in the act entitled "An act to establish a system of public instruction," etc. By section nine the county collector in each county is authorized to deduct from the State school moneys due any city or school district, etc., the proportion of State school moneys to which said additional free public school, created by the act, is entitled. The county collector is made the custodian of the money. The county superintendent, upon the warrant of the board of trustees of said public school, shall draw school order or orders upon the county collector in favor of the teachers and the payment of such incidental expenses as the law allows for public schools.

The Constitution of the State, Article I, section 20, provides that "No donation of land or appropriation of money shall be made by the State or any municipal corporation to, or for the use of any society, association, or corporation whatever."

I am of opinion that the act attempts to appropriate money to the use of a corporation within the prohibition of the Constitution. The same question was submitted to me some years since in reference to an appropriation for Rutgers College, and I then gave the opinion that the appropriation was unconstitutional. Having reached the conclusion that the bill is unconstitutional for the reasons stated, it is unnecessary for me to consider the question whether it is in the power of the legislature under article IV, section 7, paragraph 6, in providing for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all the children in this State between the ages of five and eighteen years, to accomplish this result by the instrumentality of a private corporation.

I am, Very truly yours,

JOHN P. STOCKTON,
ATTORNEY GENERAL.

Owing to the adverse opinion of the Attorney General, the friends of the bill immediately withdrew it before a vote was taken. Since, however, it is the avowed purpose of the authors of the measure, after they have remedied, if possible, its constitutional defects, to urge its enactment at a future session of the legislature, there will continue to be considerable local, if not national, interest in the outcome.

A. B. POLAND

CHANGES IN NERVE CELLS

In the November number of the *Journal of Morphology* is a very interesting paper by Dr. C. F. Hodge of Clark University, entitled "A Microscopical Study of Changes due to functional activity in nerve cells." The purpose of the paper is to advance our knowledge, as far as possible, into the conditions of the nerve cell during activity.

To educators the interest of the paper lies in the fact that its author attempts to demonstrate that every state of consciousness is the concomitant of a molecular change in the brain cells; and that a brain cell, like a gland cell, after performing a certain amount of work, becomes exhausted, and needs rest. It has already been shown that a gland cell during rest becomes filled with granules, and that during secretion the granules pass out, leaving the cell more or less shrunken; after an interval of rest the cell is seen to be refilled. "How far," Dr. Hodge asks, "does this same process take place in a cell of the spinal cord or of the brain?" To answer this question he has devised and carried out a number of exceedingly interesting experiments.

I will describe one or two of these, without going into details as to methods, in order to give an idea of the work and its results.

By means of electricity the first thoracic ganglion in the spinal cord of a cat was stimulated for one hour and forty minutes. When this ganglion was compared with one that had been at rest, it was shown that the former had undergone a shrinkage in volume of 25.6 per cent. Having performed a great number of similar experiments, Dr. Hodge concludes that we have as a result of electrical stimulation:

a. For the nucleus: 1. Marked decrease in size. 2. Change from a smooth and rounded to a jagged, irregular outline. 3. Loss of open reticular appearance, with darker stain.

b. For the cell protoplasm: 1. Slight shrinkage in size. 2. Lessened power to stain or to reduce osmic acid. 3. Vacuolation.

Dr. Hodge further proves that the processes of recovery are, in general, the reverse of those of fatigue, and that after six and a half hours, cells that have been stimulated still show characteristic marks of exhaustion. Where the stimulation has been extreme, the period of recovery is prolonged even beyond twenty-four hours.

The question is naturally asked: "Does the normal activity of an animal result in changes in the ganglion cells like those produced by artificial stimulation?"

English sparrows, pigeons, swallows, and honey bees were experimented upon to obtain an answer to this question. The method was to examine a part or the whole of the brain of the animal after a day's activity, comparing it with the brain of the same species after a night's rest; and in the great majority of instances it was clearly shown that there was a marked modification in the appearance of the cell contents, the fatigued cells having lost their granular substance and looking as though the tissue had been perforated by a charge of fine shot.

A friend remarked to Dr. Hodge just as he was beginning his work: "You will find no changes in nerve cells corresponding to those which take place in a gland. Changes are demonstrable in gland cells, because these produce a material secretion; but the case of a nerve cell is different. Its secretion is consciousness, a thing outside the equation of conservation of physical energy."

Just what this critic, with his naïve commingling of transcendentalism and materialism, thought impossible, was clearly proved to be the fact. A nerve cell is a minute speck of highly unstable protoplasm, and its daily activity results in material changes in its appearance and constitution. Only after a prolonged period of sleep or rest is the normal state of the cell regained. When we say that we are tired it means that the nerve cells are more or less emptied and shrunken. That we are rested means that these cells have become refilled. by a series of nutritive changes.

There is no class of workers more concerned in experiments of this nature than teachers. When we take up an educational journal and look over the examinations and tests to which children are subjected, and then picture in imagination the shrunken condition of their nerve cells when the task is over, we feel that we may urge a careful perusal of Dr. Hodge's paper, in the hope that such severe strains may be entirely done away with, or at least reduced to moderate limits.

GEORGE W. PECKHAM

SUPERINTENDENT OF SCHOOLS,
MILWAUKEE, WIS.

VIII

REVIEWS

The Formation of the Union.—By ALBERT BUSHNELL HART, Ph. D. [Epochs of American History]. New York and London: Longmans, Green & Co., 1892, pp. xx, 278. Price $1.25.

In nothing has the study of American history made better progress during the last few years than in the issuing of really first-class manuals for students. Among the best of these recent manuals is Mr. Albert Bushnell Hart's *Formation of the Union.* A glance at the book shows that Mr. Hart has thoroughly realized the elementary fact that it takes a great deal more pains to be concise than it does to write at length. His book is a condensation rather than a sketch; that is, it is not a mere rapid glancing over the points which would strike the attention of everyone, but it is a carefully worked out history, each deduction being made after a thorough examination of materials, while the matter not needed has been eliminated after being studied, instead of being rejected offhand without study. One result of this method of treatment has been the laying especial stress upon the causes of the events rather than upon the mere events themselves.

Mr. Hart begins by sketching the peculiar colonial development of the colonies, and then describes the sharp struggle between France and England which ended in the exclusion of the former from the mainland of the American continent. He outlines with remarkable fairness the causes of the Revolution, and shows his sound historic judgment by basing the justification of the Americans, not upon the catalogue of grievances which they drew up, but on the fact that they were standing resolutely against submission to arbitrary irresponsible power. Mr. Hart again shows that he belongs to the new school of historians by the clearness with which he recognizes the disunion of the Americans in the face of their foes, showing that America's real enemies were those of her own household. Especially did she suffer from the lack of whole-souled combination between the different colonies and the different classes of citizens. There was no such fervent and hearty devotion to the cause of the Revolution as there was three generations later to the cause of the Union when menaced by secession. The spirit of 1776 was inferior to the spirit of 1860. Mr. Hart not only pays proper tribute to Washington's greatness as a man, but, what is more rare, he does full justice to him as a general and soldier.

He then goes on to show the failure of the confederation under which the States at first strove to live after independence became an assured fact, and explains briefly, but clearly, the conditions under which the present Federal Constitution was adopted, and lays proper emphasis upon the fact that the Constitution as adopted was not a compact, that is, an agreement which loses its force when any one of the parties ceases to observe it, but an instrument of government similar in its origin to the constitutions of the States.

Describing the early history of parties under the Constitution, Mr. Hart does full justice to both the weakness and the strength of Federalism. He shows that the Federalists had of necessity to fall, because deep down in their hearts was rooted a distrust of the democratic principle which America represented; and yet he shows no less clearly that, though they disappeared, the most important of the principles for which they had warred really triumphed in the end, and were adopted in fact, although not in name, by the party which overthrew them. Indeed had it not been for the adoption of these principles by the Democratic party after its success in 1800 the government of this country would have had to come to a standstill; and, as it was, it was the weakness and absurdity of the theories of government which were then popular in the nation, and which were typified by Jefferson and his successor, that so nearly brought down utter disaster upon the United States in the War of 1812. Mr. Hart shows well how rife the separatist or disunion spirit was in the Union even down to the War of 1812. In his concluding chapter he describes the administration of John Quincy Adams, and ends his book with an account of Jackson's election. In discussing this, which he aptly calls a triumph of democracy over tradition, he shows his usual clear judgment, especially in recognizing the part played by the West in the contest.

THEODORE ROOSEVELT

WASHINGTON, D. C.

Alcuin and the Rise of the Christian Schools.—By ANDREW FLEMING WEST. The Great Educators' Series, edited by Nicholas Murray Butler. New York: Charles Scribner's Sons, 1892, pp. 1–205. Price $1.00.

This monograph by Professor West is not unworthy of the series in which it appears. The author has brought to bear upon his subject no small share of research; in the main, he uses his authorities to advantage, and succeeds in giving us a fair estimate of Alcuin and his influence as an educator. Mr. J. Bass Mullinger went over the same ground, and while giving us a very readable book he left much to be said about Alcuin. Professor West tells us many of the unsaid things. In Monnier and Werner he had safe guides. He gives us the pith of what the ordinary reader cares to know of Alcuin's educational works, his method, his character, his pupils, and his influence. The professor lost an opportunity to throw light on the Palace School in its varying fortunes under both Merovingian and Carlovingian. The subject is most interesting, and sufficient material exists, though not easily attained. The professor might have taken occasion to give us a chapter on Beda and his methods; for, after all, it was Beda's methods that were practiced in the school of York. Again, the allusions to Scotus Erigena are unsatisfactory and hardly correct. Here is a subject that might have found a place in the book. And strangest oversight of all is the absence of mention of the grammarian Vergilius and the school of Toulouse. And yet the very change of names in the Palace School traces its origin to that of Toulouse. Ever since Cardinal Mai unearthed this school and in five substantial volumes gave us specimens of the work done by its members, it is not creditable to any author dealing with the period to ignore the same. Moreover, in this direction lies a rich mine that has been worked only very slightly.

When Professor West comes to the treatment of Alcuin's controversial works, to use one of his own terms, he makes a sad "mess" of it. The page devoted to Adoptionism (60) is vague and unsatisfactory. The reasoning of the author upon the fact that Charlemagne withheld the civil power to crush this heresy is amusing. It is certainly an unnecessary piece of speculation. As archbishop of Toledo—not bishop, by the way—Elipandus was beyond the jurisdiction of Charles and the influence of Alcuin. As bishop of Urgel, Felix was in the Frankish dominion, and was accordingly summoned by

Charles in 792 to appear at the Council of Ratisbon. Now, instead of saying why Charles did not "crush the heresy," why not state what he did do? Why not tell us that twice this monarch sent missionaries to Urgel to preach the correct doctrine concerning the divinity of our Lord, and that these missionaries converted twenty thousand souls the first time and ten thousand the second time? Here is a fact.

Nor is the professor happier in his treatment of the veneration of images. He begins by calling the Council of Nice "dubiously constituted" (61). In what sense? Did not Irene send a deputation of bishops to Rome requesting Pope Hadrian to direct the action of the council? Where was the irregularity? Of a piece is the assertion, "At this council Pope Hadrian was not recognized as in any way the head of the Church" (61). Somebody has been misleading the professor. Here is the story as rendered by an historian respected by Catholics and Protestants: "There were present, besides the two papal legates, Peter, the Archbishop of St. Peter's, and another Peter, Abbot of St. Sabas, who presided over the council, more than three hundred bishops, either in person or by representation."[1] Surely the presence of the papal legates was a recognition of the Pope's authority. Again, we are told, "Hadrian's dilemma was painful." And forthwith the professor talks half a page of sheer moonshine concerning that imaginary dilemma based upon an imaginary state of affairs. We are regaled later on with the news that Charles "was, moreover, an abominator of image worship." If by "image worship" the professor means that adoration of images which becomes idolatry, he asserts a truism, for every Catholic abominates idolatry. But if he means simply the veneration shown to a picture of Christ or his saints, then I must totally disagree with his assertion, even as Charlemagne would have disagreed with it. The facts of the case concerning the so-called *Caroline Books* are not properly stated by the professor. Mr. Mullinger treats the matter in a fairer spirit. "The Roman Catholic writers," he says, "have generally sought to show that the paper found among the Carlovingian documents against image worship is spurious, and have attributed it to Karlstadt, who heralded the crusade against image worship that preceded the Reformation."[2] Quite a number of writers have so considered the paper; still a large portion of the documents might have been written by Alcuin under the dictation of Charlemagne. The Greek text was erroneously translated, and as the decrees were placed before the French emperor they deserved the repudiation they received. Then there was some personal spite cherished by Charles against Irene because she had rejected the offer of marriage of his daughter Rothrud with her son Constantine, which led both Charles and Alcuin into an exaggerated, indeed almost a dishonest, view of the decrees of the Council of Nice. The whole matter has been threshed out by Hefele,[3] whose work is an accepted authority by every impartial historian.

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[1] Alzog, *Manual of Universal Church History*, I: 214, 215, Eng. tr.

[2] *University of Cambridge*, I: 14, 15, note.

I make these remarks in no carping spirit. Professor West has given us a good book. Were he to omit altogether the pages upon which I have commented, or were he to rewrite them in accordance with history as it has been sifted and authenticated, he would be giving us a better book.

BROTHER AZARIAS

DE LA SALLE INSTITUTE,
NEW YORK, N. Y.

The Foundations of Rhetoric.—By ADAMS SHERMAN HILL, Boylston Professor of Rhetoric and Oratory in Harvard University. New York: Harper & Bros., 1892, pp. ix, 337. Price $1.00.

English Composition by Practice.—By EDWARD R. SHAW, Ph. D., Professor in the School of Pedagogy, University of the City of New York. New York: Henry Holt & Co., 1892, pp. xii, 203. Price 75 cents.

Historical Essays of Macaulay; William Pitt, Earl of Chatham; The Earl of Chatham; Lord Clive; Warren Hastings.—Edited by SAMUEL THURBER. Boston: Allyn & Bacon, 1892, pp. v, 394.

American Prose: Hawthorne, Irving, Longfellow, Whittier, Holmes, Lowell, Thoreau, Emerson—With introduction and notes.—By HORACE E. SCUDDER. Boston and New York: Houghton, Mifflin & Co., 1892, pp. vi, 414.

American Poems: Longfellow, Whittier, Bryant, Holmes, Lowell, Emerson—With biographical sketches and notes.—By HORACE E. SCUDDER. Boston and New York: Houghton, Mifflin & Co., 1892, pp. vi, 453.

The recent discussions of the teaching of English in secondary schools have, for the time being, concentrated a considerable amount of attention on this subject. Books on rhetoric without number have poured from the press, while teachers are seeking high and low for methods by which they may render their pupils capable of expressing their thoughts with clearness, force, and at least a modicum of elegance. Notwithstanding the superabundance of text-books, notwithstanding the efforts of teachers, students continue to leave the grammar school, the high school, the college, and the university, who express themselves, when they try to commit their thoughts to writing, feebly, obscurely, and inelegantly, if not ungrammatically. College professors are not slow to lay the blame on the secondary schools, and the secondary teachers with about equal justice attribute the fault to the elementary schools. The college professor holds that it ought not to be necessary for him to teach his students how to write correct English; the high school teacher, that his pupils should have shed all their bad habits of speech before they left the grammar school.

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[3] *History of the Councils*, III: 655–673. Cf. Alzog, *loc. cit.*, pp. 218–222.

It is more than doubtful whether the ideal of the college professor or that of the high school teacher with regard to the teaching of English will be realized in the near future. The grounds for this somewhat pessimistic opinion are, however, reasonably certain. Most conspicuous of them is the fact that a man's manner of speech is a habit—a habit which it is most difficult to break. Most children are accustomed to hear in their homes and from their playmates grossly defective language—defective, that is, when examined by the standard of the best usage. Defective methods of speech thus acquired are not easily shaken off. The student who has come from the farm or the mill will, except in rare instances of genius, always retain something of his provincial dialect; the student whose playground when a boy was the street of a large city never wholly rids himself of the patois of the gutter. Nor is this all. Elegant writing is one of the fine arts, some would say the chief of the fine arts, and perhaps the most difficult. Now all men would laugh to scorn a proposition to make all men great sculptors or great painters. The thing is impossible. Equally impossible is it to make all men elegant or even correct writers. This attainment is given only to the few. In the case of the many the requisite intellectual power is wanting. In the case of not a few there is probably some congenital brain defect that prevents the acquisition of that indefinable thing called style.

Teachers are now told that many defects in children, such as thought-wandering, irritability, excessive mischievousness, are often due to brain defects, and they are exhorted to study mental pathology that they may learn to apply appropriate remedies. May not some perverse habits of speech, apparently ineradicable, be traced to a like cause? Is it not possible that the boy who invariably uses a verb in the plural form with a singular noun, who sends his pronouns adrift without ever thinking to anchor them to their antecedents, and who leaves his participles suspended in mid air, so to speak, without a noun or a pronoun to modify, is suffering from some brain defect for which neither he nor his teacher is responsible? It may be, after all, that it is the province of the psychologist, quite as much as of the rhetorician, to discover the cause of so much bad English, as well as the true remedy for the disease.

On the other hand, there is some reason to suppose that the trouble is not nearly so great as it is represented. The writing, as well as the reading of English, was never so prevalent as it is at the present day. The writing of ordinary, everyday English is, as anyone who will take the trouble to compare the respectable newspaper of to-day with that of a hundred years ago, very much clearer and more forcible than in days gone by. Compare the awkward, involved English written by Cotton Mather with that of the average clergyman of the present day, and the comparison will be very much in favor of the latter. More than this, if our best writers are compared as to style with those of the last century they will not suffer in the eyes of any competent judge. George William Curtis wrote better English than Addison or Steele; James Russell Lowell, than Samuel Johnson; and, had Robert Louis Stevenson lived in the days of Smollett and Richardson, they would have been merely foils to display better his exquisite art. The fact is that good writing—albeit the amount of bad writing is almost infinite—is now so common a thing, comparatively speaking at least, that our great writers no longer appear great. They are not, like their predecessors, conspicuous because of their isolation.

While, therefore, there may be much less to deplore with regard to the teaching of English than the great outcry about the deficiencies of college students would lead one at first sight to suppose, yet every thinking teacher will welcome the books whose titles stand at the head of this article as distinct additions to the appliances for the teaching of good English. Professor Hill, who has already given to the world several useful and entertaining books on English, writes on the foundations of rhetoric with the authority of a master. What he considers them to be he states in his preface:

"Differ as good writers may in other respects, they are all distinguished by the judicious choice and the skillful placing of words. They all aim (1) to use no word that is not established as a part of the language in the sense in which they use it, and no word that does not say what they wish it to say so clearly as to be understood at once, and either so strongly as to command attention or so agreeably as to win attention; (2) to put every word in the place fixed for it by the idiom of the language, and by the principles which govern communication between man and man—the place which gives the word its exact value in itself and in its relations with other words; and (3) to use no more words than are necessary to effect the purpose in hand. If it be true that these simple principles underlie all good writing, they may properly be called The Foundations of Rhetoric."

After an admirably clear and concise treatment of the leading facts of English grammar, Professor Hill divides the body of the book into three parts. In Part I. he treats of words that are proper and words that are improper, arranged in classes to correspond with the several parts of speech, and of questions of choice between words equally proper. In Part II. he discusses good and bad sentences, arranged in chapters to correspond with the five important qualities of style, and of questions of choice between sentences equally proper. In Part III. he unfolds the laws of the paragraphs.

For the matter contained in these three parts, as well as for the plan according to which it is arranged, there can be nothing but praise. While it is obviously impossible to collect and specify all possible departures from good usage in English, it is a very important thing to have the categories of errors to one or other of which every possible blunder may be referred, stated, and clearly defined. This, I think, Professor Hill has done better and more fully than I remember to have seen it done elsewhere. His treatment of the paragraph, too —something too often neglected in works on rhetoric—is altogether admirable.

One defect, however, there seems to be: the average teacher, accustomed to text-books that present rules and principles and then exercises to be performed by the student, will not know how to use this book, and nowhere does the author tell him how to proceed. There are no exercises as such. There is an abundance of examples, but, when the proper form is presented first and the improper form afterward, as is invariably the case, what is the teacher, to whom the correction of "false syntax" is a second nature, to do? Assign lessons in this book to be memorized, he cannot. Assign faulty sentences to be corrected, he cannot; for that work is all done in plain print. Exercises in composition there are none. Will not Professor Hill come to the rescue of his friends, the teachers, by taking an early opportunity to tell them how to use his book?

The defect, if defect it be, noted in Professor Hill's book, cannot be charged against that of Professor Shaw. The latter is full of admirable exercises, adapted, however, to much less advanced students than the former. The inductive plan is pursued throughout; that is, rules and definitions are evolved from examples, and are then applied in numerous exercises that bring into play the knowledge and skill of the student. The exercises are, as a rule, highly ingenious, many of the devices seeming to be new, while the book as a whole has a literary flavor that is quite acceptable. Such being the case, it is to be regretted that the author has omitted all treatment of the paragraph, and that he has devoted so much space to the subject of paraphrasing—an exercise that usually results in spoiling good poetry in order to make bad prose.

The study of good literature, however, is much more useful than the study of rhetoric in acquiring the power to use good English. The attainment of this power is very largely a matter of imitation, and the publishers, who have brought suitable literature within the reach of every child, have conferred an incalculable boon on all classes of schools. The three volumes of this character that lie before me—Macaulay's *Historical Essays*, edited by Mr. Samuel Thurber, and *American Prose* and *American Poems*, edited by Mr. Horace E. Scudder—contain some of the best English literature for school use. They are not overloaded with annotations. The work of the editor is confined to explaining those things that cannot easily be found in common works of reference, and to pointing out fruitful lines of investigation. The boy or girl who carefully and reverently studies these volumes, can scarcely fail to imbibe something of the brilliancy of Macaulay, of the subtilty of Hawthorne, of the sweetness of Longfellow and Whittier. If literature be properly taught, literary training and moral training cannot fail to go hand in hand.

W. H. M.

The State : Elements of Historical and Practical Politics, a sketch of Institutional History and Administration.—By WOODROW WILSON, Ph.D., LL.D. Boston : D. C. Heath & Co., 1892, pp. xxxiii, 686. Price $2.00.

The peculiar transition period which our system of public instruction is now passing through, has called into being many text-books designed by their authors to answer the demands of the hour. The difficulty in the way of successfully doing so is of a twofold nature: first, the fact that, while instruction in schools of primary grade has been much modified by the general tendency toward the synthetic method, in the higher grades this tendency has been checked by the essentially didactic character of many of the studies pursued; and second, the fact that the authors of such books, who are usually educators and so allied by long habit to the older system, when endeavoring to approach the scientific method in response to popular demand are unable to handle the subject consistently from this point of view, and the result is inharmonious and disappointing. In Mr. Woodrow Wilson's book, which seems to have been designed for academies and the smaller colleges—for it is certainly too voluminous for elementary schools, and too inclusive for mature students—this defect is very apparent. The author premises that our government, laws, and social customs have certain immediate origins, and that for the English and Amercian students it is enough to understand these. He traces the course of many of our more complex social conditions through the Celtic, Slavonian, Greek, and Roman developments, and seeks the common origin of government as known to us in the Aryan family, which he concludes was distinctly patriarchal. It is unfortunate that he has employed the term *Aryan* to express either a race, class of customs, or laws; as no investigator of standing, with the possible exception of Max Müller, has now any confidence that such a distinct race ever existed. Philology may still cling to such a parent tongue, but such a race eludes anthropological research.

Mr. Wilson endeavors to be just and points out that there is a wide difference of opinion as to the patriarchal family being the source of government, or as to the original family being distinctly patriarchal in its nature; yet he settles upon this as a distinctly Aryan fact, and then proceeds to evolve from such an origin various customs and laws that could only have arisen in a matriarchal or polyandric community.

The latter part of the book, which is chiefly a compend from various works upon the governmental systems of Greece, Rome, Germany, France, England, and America, is a convenient handbook for the closest student, and is generally correct in detail. If the book is designed for immature youths, its value would be increased if the author held to a clear theory of governmental evolution, and followed it logically and consistently, even if many details inconsistent therewith had to be omitted. If intended for the mature student no method is admissible save that so ably followed by Darwin in his *Origin of Species*, the method of presenting first the allied groups of verifiable facts and then drawing the necessary deductions therefrom.

JOHN S. FLAGG

BOSTON, MASS.

IX

EDITORIAL

The leading articles in the EDUCATIONAL REVIEW for this month are more than usually rich in content. Commissioner Harris's lucid statement and unqualified indorsement of the central principle of the Herbartian system of pedagogy will surely increase the enthusiasm and widen the circle of Herbart's disciples in this country. Professor Howison exposes the shallowness of many widespread opinions regarding the control and support of schools by the state, and sets forth what he believes to be the true ground. When he argues, however, against making education entirely free, and in favor of state control of private schools, he runs counter to so many of the most cherished ideas of the American people that this expression of opinion is certain to stir up a controversy which cannot be otherwise than beneficent in its effect. It is well that men should be constrained at times to re-examine the foundations of their faith. Supervisor Martin in his article on "Horace Mann and the revival of education in Massachusetts" makes a most important and interesting contribution to the history of education in America. President De Garmo advances a practical application of the much discussed but little practiced theory of the correlation of studies in elementary schools. It is safe to say that no more important subject than this can be brought to the attention of teachers. It would be premature to assert that President De Garmo's solution of the problem is final, but few will be found to doubt that the plan which he originates would be far preferable to the confused and confusing courses of study now in vogue. Miss Hornbrook's article on "The pedagogical value of number forms" brings to light some forgotten facts in psychology that have a most direct bearing on the teaching of elementary arithmetic.

The New Jersey parochial school bill, the full text of which is printed in this number of the EDUCATIONAL REVIEW, is exciting attention in all parts of the country. Though failing to become a law, in fact to be pressed to a vote in the legislature, by reason of its alleged unconstitutionality, it nevertheless presents the question in a new light, and indicates pretty clearly what is likely to be the policy adopted by the supporters of the Catholic parochial schools. The recent decision of Monsignor Satolli, denying the right of the priests to withhold the ordinances of the Church from the parents of children who attend the public schools, has doubtless precipitated action on the part of those who are responsible for the introduction of the New Jersey bill. The number of parochial schools has increased rapidly in New Jersey during the past few years. Their maintenance will be especially burdensome, if attendance on them cannot be enforced by the Church authorities. The exigency of the case, it is said, led to the present unexpected move to secure state aid for their support.

Not satisfied with the slow progress of adjusting the relations of public and parochial schools by municipal compromises as in Stillwater and Faribault, the authors of the New Jersey bill have thought it the best and shortest way to appeal directly to the State legislature. This decision on their part should be heartily welcomed by the opponents of state aid to parochial schools, since it will enable the much vexed question to be the sooner settled. There will no longer be any beating about the bush nor misunderstanding of intent; the discussion will be removed from the pulpit to the forum.

If the bill referred to is carefully studied, the change of base will occasion some surprise. It is no longer urged that the public schools are unfit schools; for the present at least the action of Monsignor Satolli in permitting attendance on these schools has set that question at rest. It is now claimed that the State should foster the parochial schools on the ground of public policy, or, better, perhaps, of public necessity, that is, to quote the bill, "in order to increase public school accommodations and to carry out more freely the provisions of the constitution, wherein the legislature is empowered and commanded to provide for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all children in the State between the ages of five and eighteen." The fact is admitted, say the advocates of the bill, that the State has thus far failed to provide adequate and suitable accommodations for all children of school age, as the constitution requires. Now, therefore, it is the part of wisdom and economy for the State to accept the aid of private school corporations. In consideration of a nominal charge for the payment of teachers' salaries, these private school corporations will furnish buildings, equipment, etc., and enable the State to carry out its constitutional obligations to all its people.

Viewed from the standpoint of many even of those who are not advocates of Church schools, this offer will appear reasonable and worthy of consideration. That it violates the existing system of schools maintained wholly by the State they consider of no great moment. The advantage to the State outweighs any sentimental considerations. This is the view of the case taken by the authors of the New Jersey bill, many of whom, it should be said to their credit, have proved themselves in the past real friends of the public schools. It is claimed by them that the bill is in no sense inimical to the public schools; it is to supplement their usefulness.

By the provisions of the bill, all private school corporations without regard to sect may, by coming under its provisions, participate in the benefits of the proposed law. Hence it is maintained that the bill is in no sense sectarian. It prohibits religious instruction within school hours, and hence is not in the interest of any creed. It furnishes instruction free to all, and hence establishes schools that may be rightly considered as free public schools.

As a compromise measure, it may be said to yield on the part of the parochial schools the following points, heretofore stoutly contended for: 1. That schools so established shall be under State and municipal inspection and supervision. 2. That all teachers employed shall be regularly licensed by the State authorities. 3. That no religious instruction shall be given in school hours.

On the part of the State it requires that the following points shall be conceded: 1. That the governing board of trustees, though formally appointed by the State authorities, shall be in fact designated by the private incorporators, and not directly or indirectly by the people. 2. That there shall be contributed by the State for the maintenance of these schools a sum equal to the average cost per child to the State for the year preceding, as determined by actual attendance.

It will doubtless appear to many who are not Catholics that a compromise along the lines indicated would be an equitable and safe adjustment of the whole controversy. That the compromise will be accepted by the friends of the American system of free public schools, maintained and governed exclusively by the people, is more than doubtful. The request for amnesty, it should be observed, comes from the parochial school side; it is a confession of weakness; as such it will nerve the friends of the public schools to a stouter resistance against any encroachment upon the existing order.

The battle royal was fairly begun when an appeal was taken to the New Jersey Legislature. The authors of the bill claim that the adverse decision of the attorney general will only temporarily deter them from pressing the measure to an issue. The outcome is not yet.

The continued success and prosperity of the Teachers' College of New York—known until recently as the College for the Training of Teachers—is matter for congratulation. This institution, organized only nine years ago under the name of the Industrial Education Association, has steadily won its way into public esteem and favor. While still standing on its own foundation it had demonstrated that there was a reason for its existence; but now that it has become affiliated with Columbia University it is evidently about to enter on a career of more extensive usefulness. Mr. George K. Vanderbilt has donated a magnificent site for a new building in the immediate vicinity of the new location of Columbia. A lady, who makes the condition that her name shall not be disclosed, has given $225,000 for the mechanic arts building; while toward the construction and equipment of the main building the sum of $150,000 has been raised, and of the $200,000 necessary for its completion $60,000 has been pledged on condition that the remainder shall be subscribed.

The college has steadily pursued two main lines of work—the training of teachers, particularly specialists in kindergarten work, elementary science, physical culture, form study and drawing, and manual training, including cooking, sewing, and wood and iron work, as well as all-round teachers for grade work in elementary schools; and the maintenance of a model school extending from the kindergarten to the high school.

It has done much to introduce and popularize the ideas of the "new education," by demonstrating in its model school their availability, and by sending out teachers admirably equipped to carry them into effect. With increased facilities for work it will certainly accomplish much more.

It is to be hoped that the Teachers' College in its new home will pay special attention to the training of teachers for secondary schools. While the idea is steadily gaining ground that professional training is necessary for the teacher in an elementary school, the feeling is still prevalent that anyone who graduated from a college is fitted to teach in a high school.

The German Department of Harvard University has issued a pamphlet describing the advantages offered at Harvard for the advanced study of German literature and Germanic philology, which, although mainly addressed to German-Americans, is of general educational interest. It appears that of the twenty-eight courses conducted by the department there are twelve dealing with subjects which may properly be called university studies, such as history of German literature in the twelfth and thirteenth centuries, history of German literature and art in the period of the Reformation, Germanic mythology, Germanic antiquities, history of the Faust legend, Gothic, Old Saxon, Old Norse, etc. The teaching force consists of four professors and five instructors, of whom five are natives of Germany. Of the 940 students who, during the current year, were enrolled in the department, about one hundred took courses wholly or in part intended for graduates. Taken together with the excellent work done in the same direction at Johns Hopkins, Ann Arbor, Columbia, Cornell, and elsewhere, this condition of things at Harvard goes to show that, having long ago distanced England in modern language instruction, the universities of this country are now in this line of study also fast approaching the level of continental university methods.

The report of President Warren of Boston University for the year 1892 tells a most gratifying story of enterprise and progress. The whole number of students in all departments was 1069. Since 1880 the increase has been over one hundred per cent. The number of students in the "school of all sciences," corresponding to the post-graduate departments of other universities, was 117; the number in the school of theology was 160; in the school of law, 210; in the school of medicine, 132; in the school of agriculture, 163; and in the college of liberal arts, 329. The number of young women was 312; and of young men, 757. During the past eighteen years young women have formed, on an average, twenty-five per cent. of the total enrollment. President Warren does not discuss the propriety of coeducation of the sexes; he seems to regard it as demonstrated. Though the net assets of the institution have increased in value from $330,565 in 1879 to $1,518,796 in 1892, its administration is "still embarrassed for lack of necessary means, and compelled to enforce in many directions painful and injurious economies." President Warren sets forth both the past achievements and the present necessities of the university with sufficient plainness of speech.

The Harvard Teachers' Association, composed of officers and graduates and former students of Harvard University who are now engaged in teaching, recently held an important meeting in Cambridge, Mass. About two hundred representatives of New England colleges and secondary schools were in attendance. The study and teaching of English, electives in elementary education, and the correlation of studies were discussed.

Professor Tufts of the Phillips Exeter Academy pointed out that in spite of Mr. Adams' report, good instruction in English is given in the preparatory schools, and after describing his own plan of teaching English, he laid stress on the important point that the teaching of English is not the exclusive business of the "instructor in English."

Principal Edward J. Goodwin of the Newton High School, whose paper on "Electives in the High School" was published in the EDUCATIONAL REVIEW for February last, now carries the principle of election into the grammar school period, contending that at the age of eleven or twelve a child should have completed that part of the curriculum which is concerned with those rudiments of knowledge that are essential for a man in any condition or pursuit of life. At that age, uniformity should give place to diversity, and provision should be made for three classes of pupils: (1) those who leave school on the completion of the grammar school course: (2) those who take a part or all of the high school course; and (3) those who prepare for college. For the first class, a four years' course and for the other two a six years' course should be provided, both with certain prescribed work, with a somewhat restricted range of electives for the second class of pupils, and with nearly all the subjects electives for the pupils of the third class. The proposition is one worthy of the most serious consideration.

President De Garmo's important paper on the correlation of studies comprised a criticism of the Herbart-Ziller attempt to make the educational value of every subject consist of an ethical content, and placed the whole subject of correlation on a rational basis. The paper is published in full in this issue of the REVIEW.

Professor Paul H. Hanus, secretary of the association, proposes that at future meetings the views of prominent men interested, but not actively engaged, in educational work, shall be presented, in the hope of facilitating co-operation between the teachers and the intelligent leaders of the community—a most desirable consummation.

The powerful arraignment made by Superintendent John Swett of San Francisco of the methods employed by the board of education of that city in the appointment of teachers, has led to important and satisfactory results. The old method, which Mr. Swett characterized as "the worst in the world," has already been described in the EDUCATIONAL REVIEW.[1] Under the new rules, the principle of competitive examination is introduced. "After July 1 of each year," the rules read, "the first six vacancies occurring in the substitute class shall be filled by appointment from the graduates of the normal department of the girls' high school of that year, the selections to be made . . . from the twelve who graduate with the highest percentage." "A competitive examination," the rules proceed, "shall be held of graduates of the city normal school, exclusive of the graduating class of the current year, and, out of the number of those applying, the twelve who shall upon such examination be found to be the best qualified, shall be deemed to be entitled to be appointed

[1] EDUCATIONAL REVIEW, Vol. V: 310.

teachers." The eighteen persons selected in the manner described above, are to be appointed to fill the first eighteen vacancies that may occur in each year. Should further vacancies occur, the appointments may be made in the old way, but by the following clause a restriction of vital importance is placed on the power of the members of the board: "No one shall be appointed a teacher in the schools of this city who is not a graduate of some normal school or other institution of learning of equal or higher rank, with a regular diploma therefrom, or who shall not have had at least one year's successful practice in teaching in primary or grammar schools, and holding first grade certificates." The competitive examinations are to be conducted by a committee consisting of the superintendent, and not less than five members of the faculty of the University of California.

While it is open to serious doubt whether competitive examination is the best method of determining the fitness of teachers, yet it is evident that the new plan is very much better than the old. The most important feature of the new rules, however, is the fact that hereafter no one who has not received sound professional training, or who has not had at least one year's successful experience in teaching, may be appointed a teacher in the public schools of San Francisco. This rule sets a minimum of qualifications, which, even should the school board return to the old political methods of appointment, will prove a sufficient barrier against the inroads of the inefficient.

At least two other regulations are required to complete in a reasonable manner the San Francisco plan: Teachers should be appointed only on probation at first, and the superintendent and principals of schools should be given a voice in making appointments, so that the appointees may feel a definite responsibility to the supervising authorities. Where each person in a school system is not charged with definite responsibility for definite work, and where the failure to perform adequately certain definite duties is not visited with appropriate punishment, a system of public schools can never reach its highest efficiency.

The report of General Agent Jackson on education in Alaska, one of the documents embodied by Commissioner

Harris in his report for 1889–90, is an interesting and instructive pamphlet. Alaska has at present 15 day schools, supported wholly by the government, with a total enrollment of 1110 pupils; 9 contract schools, containing 302 pupils, supported jointly by the government and the missionary societies; 10 mission schools, with an enrollment of 297 pupils, supported wholly from the funds of the churches; and 2 schools containing 79 pupils, maintained on the Seal Islands by the North American Commercial Company, under contract with the Treasury Department. In all, there are 37 schools, with 1788 pupils.

The report, in addition to information about the schools, sets forth a vast array of ethnological facts which must be considered by anyone who would attempt to solve the educational problems of our vast northwestern possession. The native people, forming almost the entire resident population, have, for the most part, barely emerged from the lowest barbarism. They are ignorant of the mechanic arts, except those rude manifestations which the necessities of hunger and the rigors of the climate have called forth. They have made scarcely an attempt to till the soil, though in the "temperate belt" on the southern coast there are large areas suitable for cultivation. And worse than all, they are much given to drunkenness, and have not even elementary notions of morality.

The United States has a great duty to perform toward these benighted people, to whom trade has brought the vices, and few or none of the virtues, of civilization. Only by educating the young into habits of virtue and industry can the native races of Alaska be redeemed. And yet for this purpose the appropriation by Congress has been wretchedly inadequate. Mr. Jackson estimates that there are 10,000 children in Alaska. For the education of these children Congress has allowed only a beggarly pittance of $50,000 a year. Moreover, the appropriation has frequently been made at such a time and in such a way that "the teachers are compelled to teach the entire school year without knowing whether any appropriation has been made to pay them." Under the circumstances, the request that the annual appropriation be increased to $75,000 is a very modest one, and should be granted without delay or opposition.

Among other suggestions made by Mr. Jackson are the following: that "some authoritative regulations that will secure the more regular attendance of the native children" be adopted, the irregularity of attendance being now one of the great obstacles to progress; the establishment of a school to teach the management, care, and propagation of reindeer, and to conduct a series of experiments to determine the agricultural capabilities of the country; and that, in the villages containing a number of white people, the voters be permitted to elect school committees, who, subject to the approval of the commissioner of education, shall appoint the teachers of the white schools. These suggestions seem entirely feasible, and their adoption would no doubt result in great benefit to the country.

The establishment of free public education in England is beginning already to bear good fruit. In the recent discussion in the House of Commons on the grant for public education in England and Wales, Mr. Acland, on behalf of the government, stated that while the increase in attendance on elementary schools in 1889–90 was only 35,000, and in the following year still less, during last year it had reached 120,000. About one-half of this increase is credited to "infant schools," in which the children are, as a rule, under seven years of age. Mr. Acland stated further that the passing of the Assisted Education Act had largely increased the attendance of children up to the age of thirteen, though he was unable to say whether the increase was greater in the large towns or in rural districts. The number of free scholars in England and Wales is now about 3,800,000, and the number of children still paying fees is about 1,020,000. It thus appears that the establishment of free public schools has had a much more potent effect in inducing parents to send their children to school than the operation of the compulsory education law. At the same time the London *School Guardian* deplores the fact that the attendance on evening schools is growing less year by year, and remarks: "When we remember what is done in continuation schools abroad, it is disappointing to find that, although something like half a million of children leave school at the age of thirteen, only about ten per cent. of that number attend evening classes." A similar condition is to be deplored in every large city in the United States.

At the April meeting of the Massachusetts Association of Classical and High School Teachers, Mr. John F. Casey, a master in the Boston English High School, read a paper on "Successful Preparation for College by English High Schools." Taking as data for inference the college records of about forty graduates of the school with which he is connected, Mr. Casey drew the conclusion that schools in which Greek is not taught, but in which English, the modern languages, and the sciences hold places of honor, furnish at least as good a preparation for collegiate work as the classical fitting schools. In the discussion which followed attention was drawn to the fact that the mathematics and advanced physics accepted as a substitute for Greek in the requirements for admission to Harvard College, call for more severe and prolonged training than the Greek for which they are counted as an equivalent. President Eliot, who took part in the discussion, cordially admitted this fact, and stated that the subjects established by the faculty as approved substitutes for Latin and Greek had been purposely made disproportionately severe by the hostile majority in the faculty, in order to discourage candidates from offering themselves for examination in these subjects. The consensus of opinion, as expressed in the discussion, was that this discrimination in favor of Greek had remained in force quite long enough; and a resolution, to be submitted to the Harvard Faculty, was unanimously adopted, declaring that the substitute for Greek required for admission to the college is disproportionately severe and lays too heavy a burden on the secondary schools.

A bright and timely paper on "English in Secondary Schools" called out a spirited discussion of the report of Mr. Adams's "detective agency" on the teaching of English in the schools which send students to Harvard College. Mr. Bradbury of the Cambridge Latin School, in a searching analysis of the testimony offered by the committee as to the teaching of English in his own school, after referring to the natural bias of the witnesses summoned, proceeded to point out in detail the mutually contradictory character of their testimony. One boy, for example, said, "I should think that the proportion of English composition to our other studies was about one-sixth"; another, "I should say that the time given to English was to the time given to other subjects as one is to one hundred thousand." Other speakers declared that the spirit and method of the investigation conducted by the committee, who, "to accomplish [their] object," found it "necessary" to use "for purposes of illustration, only the poorest papers of those handed in," were grossly discourteous and unjust to the schools, and discreditable to the committee; that the sight translations from Latin, which were exhibited as results of defective training in English, showed defective knowledge of Latin on the part of the students, defective reasoning on the part of the committee, and nothing else whatever; and, in short, that the report of the committee was so far from meriting the compliment of formal remonstrance on the part of the association that it was unworthy even of serious consideration. In view of the indignant and resentful spirit which marked the discussion it may well be doubted whether the committee were not somewhat sanguine in assuming that their report would "operate directly on the preparatory schools with a view to elevating the standard and changing radically the methods of instruction in English composition pursued in them."

Among other subjects discussed, were recent German educational literature, by Professor Burnham of Clark University, and "Empirical Geometry in the Grammar School," by Professor Safford of Williams College.

An unusually interesting programme is in course of preparation for the University Convocation of the State of New York, which will be held at Albany on the 5th, 6th, and 7th of July. Invitations have been sent to prominent educators in Europe, and there is reason to believe that the annual address will be delivered by a distinguished foreigner. Perhaps the most interesting feature will be a discussion of the effect that the establishment, by the government, of a national university at Washington would have on the cause of higher education. The advocates and opponents of the movement will be given ample opportunity to participate. Special prominence will be given to the teaching of English in all grades.

An important change has been made in the curriculum for the sophomore year at Yale. Hitherto out of fifteen hours a week of the work for that year thirteen have been entirely required, a choice being allowed only between two hours each of

French or German. The other thirteen hours have been occupied by Latin, Greek, mathematics, and English, the English being the least extended. Hereafter fifteen hours will be required from each sophomore, and six courses of three hours each will be offered, as follows: Mathematics, Physics, Greek, Latin, English, and either French or German. Some one of these six must be omitted.

President Thwing of Western Reserve University offers two prizes, one of thirty dollars, and one of twenty dollars, for the two best essays on "The value of a college education to a boy." The writer of each essay submitted must be a boy and a member of the senior or graduating class of a high school or an academy fitting for the best colleges. The essays are to be sent to President Thwing on or before August 1, 1893. The two that are successful will become the property of the donor of the prize, and will be published. President Thwing's object is "to direct attention to the value and to emphasize the importance of a college education."

Though the National Bureau of Education has not any part in managing the country's educational exhibit at the World's Fair, as it had at the New Orleans Exposition, yet it will itself be represented by a unique and interesting exhibit. This exhibit, prepared under the direction of Commissioner Harris, will make a very complete exposition of the scope and functions of the bureau as an office of the Interior Department. The bureau is the governmental agency for collecting and disseminating information respecting education, and as such it will be represented.

The educational world has suffered a severe loss by the death at Dresden of the Baroness von Marenholtz-Bülow, who was the chief interpreter of Froebel, and who rendered invaluable assistance to him in his attempts to introduce to public attention his kindergarten system. The baroness was a woman of great intellectual power, and without her *Recollections of Friedrich Froebel*, we should possess no lifelike portrait of the great philosopher, philanthropist, and educational reformer.